February
1984

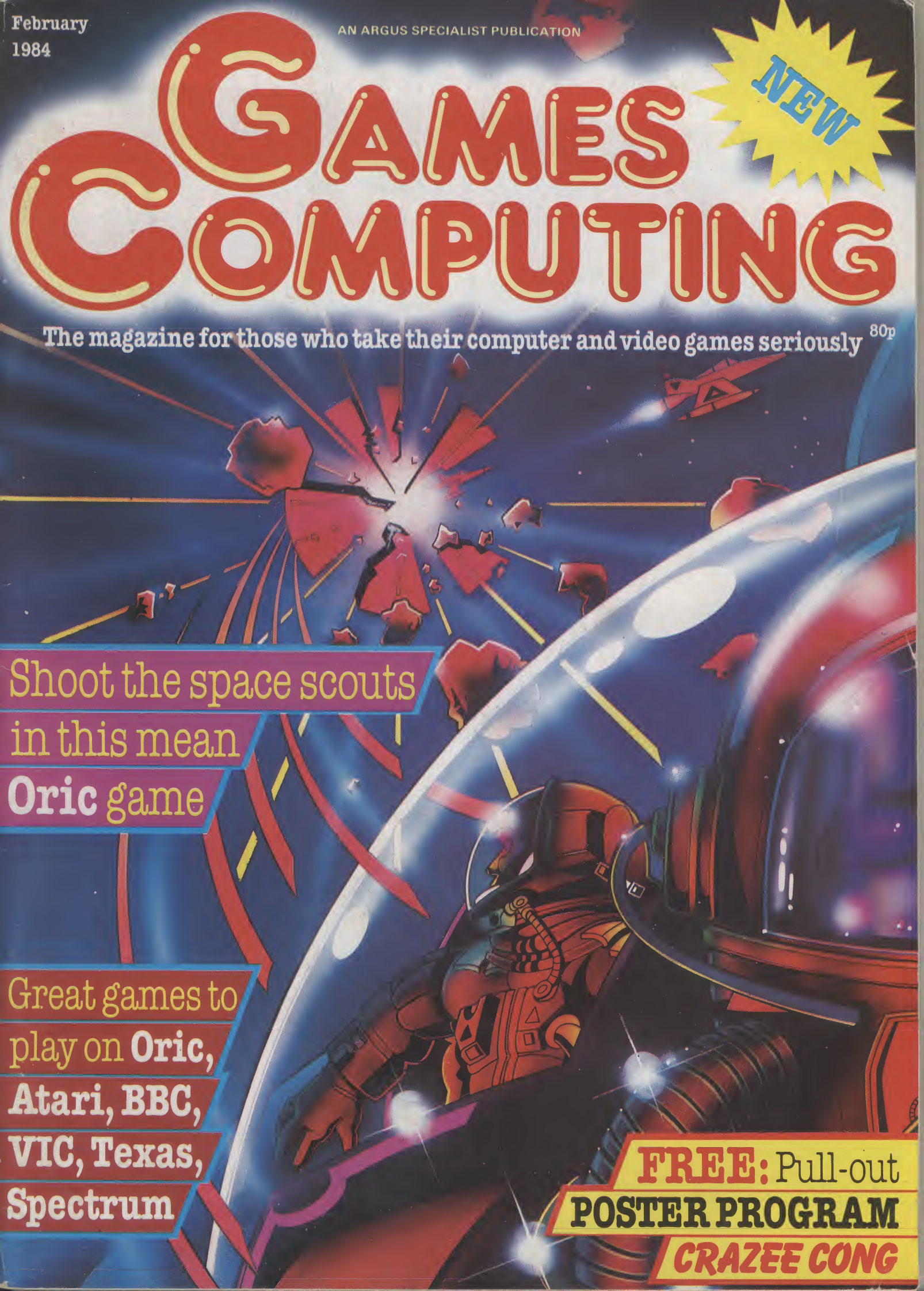
AN ARGUS SPECIALIST PUBLICATION

GAMES COMPUTING

NEW

The magazine for those who take their computer and video games seriously

80p



Shoot the space scouts in this mean **Oric** game

Great games to play on **Oric, Atari, BBC, VIC, Texas, Spectrum**

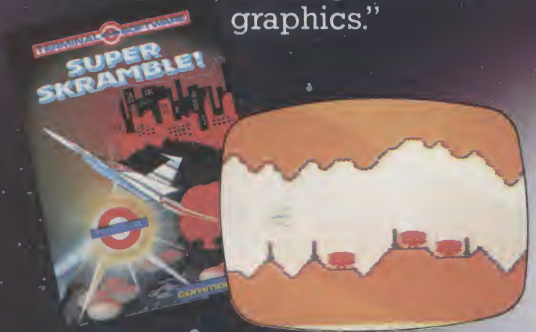
FREE: Pull-out **POSTER PROGRAM**

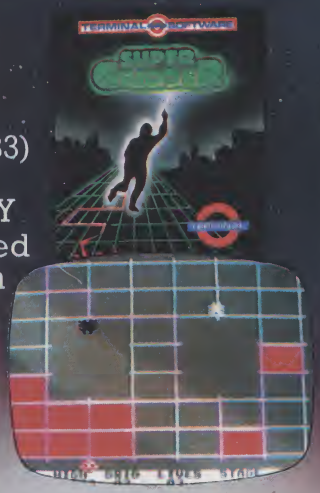
CRAZEE CONG

TERMINAL SOFTWARE

commodore 64 games cassettes

SUPER SKRAMBLE!
Personal Computer News (15-21 Sept '83) gave SUPER SKRAMBLE! an overall rating of NINETEEN OUT OF TWENTY and described it as: "Well implemented with beautifully smooth scrolling and very nice graphics."





SUPER GRIDDER
"... a compelling piece of frivolity that could give hours of fun." was the verdict of Personal Computer News (22-28 Sept '83).

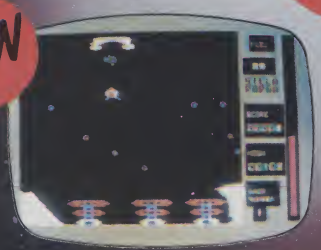
SUPER SKRAMBLE!
"An excellent game" said Computer & Video Games magazine (Sept '83).

TERMINAL

SUPER DOGFIGHT
The first 64 games cassette to have SIMULTANEOUS TWO-PLAYER ACTION – realistic sound effects too.

STELLAR DODGER
A game of skill and anticipation in which you must dodge your way through asteroids to complete your mission.

NEW

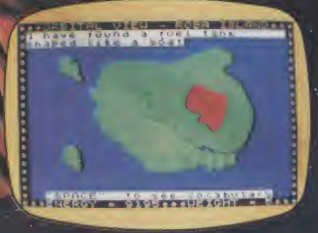


NEW

HUNTER
A fast action game in which your pursuers gain in speed and intelligence as you master each successive screen.

sinclair Spectrum 48k

VAMPIRE VILLAGE and **SPACE ISLAND** are REAL-TIME graphic adventures and every game is different from the one before.



CITY is a unique REAL-TIME better-than-a-board game for 1-4 players that combines simplicity of use with complexity of form as the city you build takes on a life of its own.

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Play this thrilling and daunting adventure game for the 48K Oric. It'll drive you wild with frustration that will keep you coming back for more!

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WIN software and sweatshirts from leading software firm **Arcadia**.

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Danger looms larger than life on your TV screen when you get switched on to this great game.

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Family games for all to enjoy but this age old world will keep everyone quiet for hours.

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Yahtzee 98
That traditional dice game put on to computer for a moment of strategy thinking.

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Based on the popular arcade game Pheonix. This 100% full colour epic pitches you against the evil Albertrons who are set to destroy your race, five levels of fast action bring you to the command centre of battle fleet, can you finish the job. WITH JOYSTICK OPTION.

GOLF (48K SPECTRUM)
Using M/C graphic routines, a game to absorb the keen novice and the scratch player. Play on a 9 or 18 hole course, with full selection of clubs. Along the greens and fairways hours of addictive sport can be had.

PICTURE PUZZLE (DRAGON 32)
With HI RES graphics and M/C. You are set the problem of putting the picture back together. Test your skill against the dragon 32 computer. A game guaranteed to hold you speli bound for hours.

ANDROID INVADERS (DRAGON 32)
In a change of tactics the beings beyond the stars have developed an android of human form to do their dirty work. And with the aid of sensor jamming they may prove formidable. Using full colour, M/C, hi-re graphics this game can offer up to 21 levels of combat.

VOYAGER (VIC 20 8 OR 16K)
The mission is simple, but its completion is far from being so. As captain of starship you have all the best facilities at your disposal. Unfortunately the klingons oppose you. A great M/C version of this classic computer game.

SPHINX (VIC 20 16K)
A riveting, full colour graphic adventure. That pits you against the spells and guardians of the tomb. In your quest to uncover the treasure of the pharoahs. This game will have you enthralled.

BIRD OF PREY (BASIC VIC 20)
Evil baron von fritz is out to kill his cousin, the much loved Prince Rupert. The Baron intends to throw the prince from his plane into the sacred fire pit. But you the eagle of the north will make every endeavour to save your friend Prince Rupert. With colour, sound, this M/C game is a must.

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Astro Attack
RAT GUN

Astro Attack combines all the Oric colours with a relatively fast and addictive space game.

When the program is run, user defined graphics are set up and the instructions given to you. The program asks you to select a skill level which determines your score and speed of the game. My personal best score was 2532 at the expert's level. You are awarded a bonus of 600 points after 1200 points have been scored.

Once the instructions are over, the screen is set up with the game. On the top right hand corner of the screen is your score, with the high score, fuel supply and lives left recorded on the top left of the screen.

Now for the action: Your ship appears half way down the screen on the left hand side of it, with the enemy putting in an appearance to the right of the screen. Control your own ship using the UP and DOWN cursor keys respectively, the RIGHT cursor key to fire your weapons.

If you choose expert level for skill you lose 10 points if the enemy ship gets past you. Expert level is also faster.

When your fuel is exhausted by gradually going down during the game, you lose a life and start a new game. You also lose lives by crashing into the moving landscape. When all three lives are lost the game ends and you are asked if you want to play again.

When the game starts the enemy ship moves across the screen, weaving up and down as it flies. You just fire your laser gun and shoot down the ship. The game works on a score board. For instance if you try your hand at the expert level you lose 10 points if you allow an enemy ship to get past your own ship. This game runs on a 48K Oric.

Conversion Clues

POKE 618,10	Turns the cursor and keyboard click off.
POKE 48035,0	Should be omitted if programmed for other computers.
PLOT	Should be replaced with PRINT AT.
KEY$	Should be replaced by INKEY$.

Colour codes are:

0, BLACK.
1, RED.
2, GREEN.
3, YELLOW.
4, BLUE.
5, MAGENTA.
6, CYAN.
7, WHITE

ZAP and EXPLODE	Should be replaced by your own machine's equivalent commands.

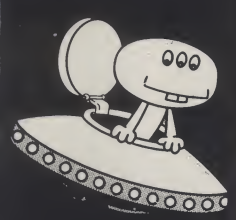
If you only have a 16K Oric you can use the program by changing the POKE addresses in which case your best bet is to have a peek at p145 of your Oric user manual.

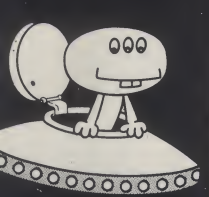
RUNdown

Lines	Action
10-60	Initialization.
70-270	Set up screen.
300-370	Move your ship.
380-420	Move enemy ship.
430-470	Move landscape.
480	Plots score.
510	Deletes enemy ship.
535	Checks to see if enemy ship has passed you.
540	Checks fuel condition.
560-570	No fuel left.
580	Checks amount of lives left.
600-620	Bonus 600.
640-740	End of game.
760-970	Instructions.
990-1060	User-defined graphics.

Variables Used

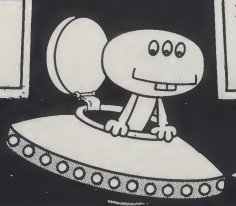
LL	=	Lives left
SC	=	Score
HI	=	High score
F	=	Fuel
Y	=	Position of your ship
T,X	=	Position of enemy ship
A$,B$,C$	=	landscape
SS$	=	Enemy craft
CR$	=	Your craft
K$	=	Keyboard inputs
SK	=	Skill level
A,H,I	=	General purpose variables





```
0 CLS
5 REM ** ASTRO ATTACK BY G.BAILEY **
10 POKE618,10:POKE48035,0
20 PAPER0:INK6
30 GOSUB990:HI=0
40 LL=3:SC=0:A=0:X=0
50 GOSUB760
60 CLS
70 REM ********** SCREEN **********
80 INK5:POKE618,10:POKE48035,0
90 PRINTCHR$(12)
100 A$="
"
110 B$="
 "
120 C$="
 "
130 PLOT0,26,CHR$(9)+CHR$(4)+A$
140 PLOT0,25,CHR$(9)+CHR$(6)+B$
150 PLOT0,24,CHR$(9)+CHR$(6)+C$
160 PLOT2,1,"Hi-score "+STR$(HI)+CHR$(7)
:PLOT25,1,"Score "+STR$(SC)

170 PLOT 0,1,7:SS$=CHR$(9)+"  "
180 CR$=CHR$(9)+CHR$(2)+CHR$(34)+"#$"
190 PLOT0,10,CR$
200 Y=10:X=16
210 PLOT5,3,17:PLOT12,3,19:PLOT30,3,16
220 P    0,3,"Fuel":F=30
230 FORT=6TO23:PLOT5,T,5:NEXT
240 IF LL=1THEN260
250 A=20:FORI=1TOLL-1:A=A+5:PLOTA,5,CR$:
NEXT
260 FORT=11TO12:PLOT15,T,CHR$(1)+CHR$(10
)+"Ready":NEXT
270 WAIT 200:FORT=11TO12:PLOT15,T,"
  ":NEXT:REM 7 SPACES
280 REM ********** PLAY **********
290 FORT=34TO5STEP-1
300 PLOT0,Y,CR$:PLOT2,Y+1,"    ":PLOT2,Y-
1,"    ":REM 3 SPACES
310 K$=KEY$:IFK$=""THENK$=L$
320 IF K$=CHR$(9)THENZAP:IFX=YTHENSHOOT
:SC=SC+INT(T):GOTO510
330 IF K$=CHR$(11)THENY=Y-1:L$=K$
340 IF K$=CHR$(10)THENY=Y+1:L$=K$
350 IF Y=24THENEXPLODE:LL=LL-1:IFLL=0THE
N640
360 IFY=24 THEN WAIT 300:GOTO70
370 IF Y<7 THENY=6
380 A=RND(1)
390 IF X<8ANDA<.5THENA=.6
400 IF X>20 ANDA>.5THENA=.4
410 IF A>.5THENX=X+1:PLOTT,X,SS$:PLOTT+2
,X-1,"   "
420 IF A<.5THENX=X-1:PLOTT,X,SS$:PLOTT+2
,X+1,"   "
430 L2$=LEFT$(B$,1):R2$=RIGHT$(B$,35)
440 L3$=LEFT$(C$,1):R3$=RIGHT$(C$,35)
450 B$=R2$+L2$:C$=R3$+L3$
460 PLOT0,25,CHR$(9)+CHR$(6)+B$
470 PLOT0,24,CHR$(9)+CHR$(6)+C$
480 PLOT25,1,"Score "+STR$(SC)+"  "
490 IF SC>1200 AND SC<1700 THEN GOSUB600
495 IF SK=0THENWAIT10
500 NEXT
510 PLOTT,X,"     ":REM 5 SPACES
520 X=INT(RND(1)*10+5):F=F-1
530 PLOT F,3,16
535 IFT=4ANDSK=1THENSC=SC-10
540 IF F=5THEN 560
545 PLOT25,1,"Score "+STR$(SC)+"   "
550 GOTO280
560 FORT=11TO12:PLOT12,T,CHR$(8)+CHR$(10
)+CHR$(6)+"Fuel Exhausted":
NEXT
570 WAIT300:LL=LL-1
580 IF LL=0THENGOTO640
590 GOTO 70
600 FORH=11TO12:PLOT12,H,CHR$(8)+CHR$(6)
+CHR$(10)+"BONUS 600":NEXT
610 FORH=SCTOSC+600:PLOT31,1,STR$(H):NEX
T
620 SC=SC+600:FORH=11TO12:PLOT12,H,"
      ":NEXT:REM 12 SPACE
S
630 RETURN
640 REM ******** END OF GAME *******
650 FORT=15TO16:PLOT13,T,CHR$(8)+CHR$(10
)+CHR$(5)+"GAME OVER":NEXT
660 WAIT 300:CLS
670 INK3
680 PRINT:PRINT,,," High Score ";HI
690 PRINT:PRINT:PRINT"Your score was ";S
C
700 IF SC>HITHENHI=SC
710 PRINT:PRINT:PRINT:PRINT:PRINT,,,"Aga
in (Y/N) ?"
720 REPEAT:K$=KEY$:UNTILK$="Y"OR K$="N"
730 IF K$="Y"THENGOTO40
740 CLEAR
750 END
760 REM ******* INSTRUCTIONS *******
770 PRINTCHR$(12):INK6
780 PRINTCHR$(4);CHR$(27)"J              A
STRO ATTACK":PRINTCHR$(4)
790 PLOT0,1,3:PLOT0,2,1
800 PRINT:PRINT:PRINT" Your mission is t
o destroy the plague"
810 PRINT"carrying space-craft from the
planet "
820 PRINT:PRINT"of Dione."
830 PRINT:PRINT" With your laser zap dow
n the weaving"
840 PRINT:PRINT"craft by using the right
 cursor key."
850 PRINT:PRINT" Position your ship usin
g the up and"
860 PRINT:PRINT"down cursor keys."
870 PRINT:PRINT:PRINT" You have 3 lives
and lose 1 every "
880 PRINT:PRINT"time you exhaust your fu
el."
890 PRINT:PRINT:PRINT,,"Press <SPACE> to
 continue"
900 REPEAT:UNTILKEY$=" "
910 CLS
920 PRINT:PRINT:PRINT" Don't crash into
the moving landscape"
930 PRINT"unless you're a kamikaze pilot
."
940 FORT=15TO16:PLOT11,T,CHR$(10)+CHR$(2
)+"GOOD LUCK ":NEXT
950 PRINT:PRINT:PRINT"Press A for amateu
r or E for expert."
955 REPEAT:K$=KEY$:UNTILK$="A"ORK$="E"
960 IF K$="E"THENSK=1ELSESK=0
965 PRINT:PRINT:PRINT,,,"Press <SPACE> t
o play":REPEAT:UNTILKEY$="
"
970 RETURN
980 END
990 FORT=47104+(8*33)TOT+47:READD:POKET,
D:NEXT
1000 DATA 63,63,63,63,63,63,63,63
1010 DATA 63,63,0,7,7,0,63,63
1020 DATA 32,63,63,63,63,63,63,32
1030 DATA 0,60,3,63,63,62,60,0
1040 DATA0,15,31,50,50,31,15,0
1050 DATA 0,60,62,19,19,62,60,0
1060 RETURN
```



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TI 99/4A

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Disarm bombs with a wire guided robot, bombs must be disarmed in order within a time limit. 5 levels of play, high score table. **£4.95**

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One arm bandit simulation featuring random hold, nudge and gamble. 'Reels' are fixed and can be learnt but motion is random. **£4.95**

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100% machine code game making good use of the sound and graphic facilities of the 64. Munch your way around the maze avoiding the ghosts, etc. **£6.95**

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GET LIQUIDATED!

Introducing five great new games from CCS guaranteed to give you plenty of trouble.

You'll get no peace in the prohibition days of Gangsters – if the cops don't get you, your rivals will. Try keeping your head above water in Brewery – a game all about liquid assets. We'll try our hardest to sink you in Plunder – a world of Elizabethan piracy. And we're sure Battle 1917 is more than a match for anyone – it should be – it won the Cambridge Award.

As if that's not enough, we've even created Abyss – a feast of excitement and hidden danger for those who dare defy the evils to be found beyond the Mountain of the Golden Lion.

So if you want trouble – we've got the games.

All available for Spectrum 48K at £6 (Abyss £5). Selected titles available from W.H. Smith, Boots, Rumbelows, Greens and all good computer shops or

Cases Computer Simulations Ltd.,
14 Langton Way, London SE3 7TL.

**CCS Strategy Games.
They're no pushover.**

news

1st WORLD VIDEO GAMES COMPETITION

The first world video games competition is on its way.

Due to be held during 1984 there is a $100,000 prize for the inventor of the winning video game. And the event is to be televised in a spectacular worldwide show during the autumn of 1984. This will be done by a specialist in presenting such shows as Miss World, the Wimbledon tennis tournament and the US and British Open Golf Tournaments. All the six finalists in the competition will appear on the show and the ultimate winner will be handed his advance on expected royalties for his winning game.

With the marketing for the winning games being handled by the famous Mark McCormack's organisation the International Management Group the games will have worldwide exposure. He's the man who has made fortunes for great sportsman like Bjorn Borg and Arnold Palmer — who knows, you could be next!

The competition has been organised by Video Games International of Buckinghamshire, and there are six categories which you can enter. These are SPORTS SIMULATORS, ARCADE, ADVENTURE/FANTASY, STRATEGY and PUZZLES with a special award for any games with particular educational or entertainment value.

If you fancy yourself as a millionaire inventor of video games you can write an (original) program for any of the popular home computers. That means the Spectrum, VIC-20, Commodore 64, Atari, Oric, BBC B to name but a few.

All entries must be sent to Video Games International on standard audio cassettes along with a written description of the game play which must include any special features of the game.

You must also remember to give specific details of the computer which you wrote your game for and your full name and address.

Eventually VGI want to create a special register called the International Register of Videogames Inventors Limited. This will contain names of inventors and their games creations and will be permanently available for international manufacturers who are scouting around for new products to market. VGI stresses that only inventors of 'high merit' games will be included in their bible of products.

Once the winning games have been decided the International Association of Video Games Inventors intends to send out the best six games to TV stations, newspapers and magazines throughout the world in order to organise a playing competition of the games to find the International Video Game Player of the Year. He or she will win $100,000 and the final of this grand competition will be held in the Autumn of 1985, coinciding with the IAVI's announcement of that year's winning games.

If you're interested in this competition why not send your entry straight to Video Games International at Pinewood Studios, Iver Heath, Buckinghamshire SL0 0NH or if you want to find out more details about the competition and its rules drop them a line asking for further information.

Good luck — and if you win and turn out to be a millionaire the editor says she wouldn't mind having a cut of it too!

Rock 'n' Rolling With K-Tel

K-Tel International is the latest record manufacturer to launch into the booming computer games software market.

The first of what the firm hopes will be a string of hits is for a series called Doublesiders. This means that you get two games for the price of one kicking off with games for the ZX Spectrum and VIC-20.

Of the first batch of goodies K-Tel is keeping its ties with its heritage with a game called 'It's Only Rock 'n' Roll'. This is an adventure game in which you take the part of an up-and-coming young hopeful in the music making business. It's up to you to plot your course to success and reach the status by the likes of Boy George or the Rolling Stones. Do you want to begin by busking round the countryside or play in the pubs asnd clubs in London using as a platform to launch your career to stardom? If you do, then this game is a must for you.

On the reverse side of this tape is another adventure this time taking the traditional theme of Dracula. You are stuck in Dracula's tomb and must try and escape from it before he reaches you and sinks his teeth into you. You only hope is to find your way out of the tomb by using your brains and cunning, oh, and there are also seven silver stakes which you must use to kill Dracula if the occasion arises.

Other K-Tel games to look out for include Battle of the Toothpaste Tubes/Castle Colditz (48K Spectrum), Alien Swarm/Arena (16K Spectrum), Supavaders/Bomber Run (VIC-20), and Plageu/Alein Demon (VIC-20 with 8K expansion.)

K-Tel is going into this line of business in a big way with the policy of offering the public 'great quality at great value' and 'top class games at competitive prices'. The firm is launching their brand new range of games via television national press advertising so watch out around on your telly for news of their games. You'll find the K-Tel game on sale in all the large multiples now with further releases due for the Commodore 64 as well as other machines. Prices of the games are £6.95 which sounds like good value money to me.

BRICKIE'S BOOST ON ATARI

Ever fancied yourself as a well-paid brickie? Well now's your chance to do just that with the help of English Software's new game for the Atari computer.

Batty Builders sounds like a bundle of laughs as long as you don't mind running the risk of being crushed under the weight of falling breeze blocks. What you must do is rush around the screen catching breeze blocks as you go and as you pick them up free yourself to catch more by building walls. All colour action is a feature of this game with eight different skill levels to tax even the most adept of brickies.

Following hot on the successful heels of English Software's Airstrike is Airstrike 2. This game falls into the Defender category in which you bomb and fire at the enemy while flying over a particularly hazardous terrain. English says it is an 'even more challenging game' and comprises new landscapes, a joystick bomb control and a 'host of new hazards'! If you Airstrike fans are a glutton for punishment this could very well be the game you have been looking for.

Two adventure games for the Atari are on tap from English (at a price of course. These are Caverunner and Captain Sticky's Gold. The first is all to do with Kong's Kingdon where you must cross dangerous waterfalls, exploding volcanoes and enter the fire and water caverns in search of the 'hidden jewels, chalices and treasures'. The latter of the two is an underwater chase in which you must rescue loads of lost gold. But while you're doing that you have to avoid MX missiles. Forcefields, man-eating crabs and oxygen-hungry leaches. And that's beside the lethal fish. Sounds like something to make a meal of!

And for the Commodore 64 there's a great new adventure game whose scenario is set underwater in Neptune's lair. It is a multi-screen adventure in which Neptune's daughters are held captive in a secret underwater cavern by slithering sea snakes. And it's up to you to rescue tham before their oxygen supply runs out — and that's likely to happen very quickly. But first of all you must devise a cunning way of luring the sea snakes away from their new-found prey. Only by trial and error will you find out how you can save each of Neptune's daughters.

You can buy any of these titles for the Atari and Commodore 64 computers from branches of Boots, Greens and Laskys as well as from dealers of the Atari and Commodore 64. Otherwise contact the firm at Box 74, Manchester M60 or telephone them on 061-835-1358.

PENDULUM OF DEATH

You'll be swinging in suspense in Satan's Pendulum as you tackle the traumas of Edgar Allan Poe's horror stories.

The idea of the game is to rescue the captive heroine, Pixel Ramtop, from the centre of Prospero's castle. She is trapped in the torture chamber of the castle tied up underneath a slowly descending pendulum. But the journey to the centre of the castle is no easy one and you must beware the evil killer monsters who jealously and loyally guard the rooms of Prospero's castle.

There are three different scenarios to test your trauma-taking capacity as well as four skill levels and animated cartoon graphics to illustrate the game. You can also use Kemptson joysticks with the game. Coming with the tape is a booklet of rules and advice on how to approach strategy to play the game. Also included in the game book are descriptions of the procedures used to create the animated cartoon graphics giving examples of the techniques employed designed to help users incorporate them into their own programs.

Satan's Pendulum costs £5.95 and you can buy copies from the producer Minatron Computing, 34 Pirewood Close, Westbury on Trym, Bristol BS9 4AJ. You can also ring them on Bristol 623597.

PSS . . WHO ARE THE KRYSALS OF ZONG?

What on earth will you find in the Krysals of Zong and who is lying in wait for you to tackle them in Neoclyps?

You'll only find out in these brand new games for the Commodore 64 just released by PSS. These are only two of the five zanily names games to hit the streets. Other new titles from PSS are Metro Blitz (in the picture) which looks like certain fun, games and frustration to me, then there's Moby Dick which sounds as if it could have something to do with the story of a giant whale who only liked eating humans! Cosmic Split is a space game — but all of them have been written as adventure games.

These new tapes cost £7.95 each and are available either mail order from PSS itself or you can buy them across the shelves of Boots, Smiths, Menzies, Selfridges and Comet.

PSS is quite well established in the computer games software market having produced products each month for a variety of machine such as the Spectrum, Oric 1, Dragon 32, ZX 81, BBC B, and Commodore 64, (or Commodore 84 as the press release says!).

More information about PSS's products can be obtained directly from them at 452 Stoney Stanton Road, Coventry, West Midlands. If you want details more quickly you can telephone the firm on 0293 667556.

NEW TWO-COMPUTER GAME

Just out from Protek is a novel idea for a computer game in the form of Hunter-Killer which can be played on one computer or two!

Protek claims the new game is unique because of this design feature. The game enables you to link up two computers and the cassette contains two versions of Hunter-Killer. One is for a solo computer and the other runs on two computers.

The idea of the two-computer game version is that two players can play against each other in a 'hide and seek' game. So gives that Hunter-Killer is a submarine simulation one player will be hiding his target, while the other is seeking it. It certainly sounds very interesting indeed.

An expert from Protek described it being similar to playing a dual game of chess and says that it opens up all sorts of possibilities for games players. Like using a modem via a telephone to play games with a colleague remotely. As far as Protek is aware this is the first time a game of this sort has reached the saleable stage. The firm is very excited about their new product and are delighted to report that it is selling very well, with dealers banging on Protek's door for more copies of the game.

The game itself sports high resolution graphics (of course), 18 control functions, four different levels of difficulty, Asdic radar and depth sounder, visible torpedo tracks, live enemy target, animated sea view and 3D view of the target.

Protek has plans afoot to develop further games of this nature but are safely keeping any ideas under their hat for the time being! Hunter-Killer costs £7.95 and is on sale in all the large multiple stores.

If you want to get in touch directly with Protek you can contact them at Unit 1A, Young Square, Brucefield Industrial Park, Livingston EH54 9BX. Or telephone them on Livingston (0506) 415353.

The BBC Micro can now give your children a private education.

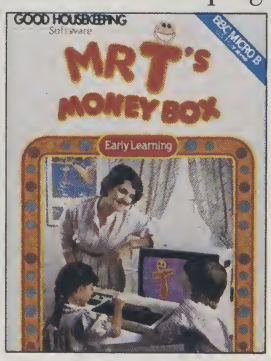
The BBC Microcomputer now accounts for 80% of the computers being ordered under the current D.O.I. Primary School Scheme.

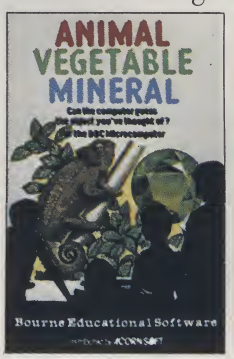
It's also the computer which a rapidly increasing number of people are choosing for their homes.

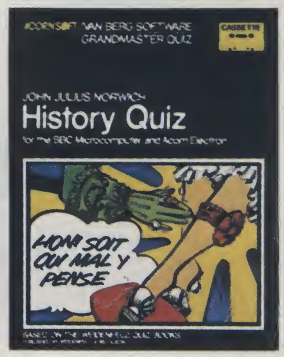
One of the reasons for its success is that it makes learning highly entertaining for everybody. From children who are getting to grips with the alphabet, to adults who want a gentle but intensive introduction to the complex world of computing.

Now, there's a substantial new catalogue of educational programs specially for the BBC Microcomputer.

It has been developed by Acornsoft, the software division of Acorn Computers who manufacture the BBC Micro.







Making faces without getting scolded.

With the new Facemaker program, your children can make over a million faces. It's like an identi-kit, allowing them to depict anyone they want. They start by choosing the eyes. Then they can choose the mouth, the ears, the nose, the facial outline and the hairstyle.

And if they really fancy dressing up, they can add earrings and hats.

In doing all this, they learn to read and spell, as well as developing their powers of description.

The money program, two games for the price of one.

Mr. T. is an engaging little figment of the microchip who can teach your children all the complexities of our coinage system.

His Money Box program has two games, each of which can be played at different levels.

In Money Match, the challenge is to collect a set of coins, matching them according to shape, size and value.

In Money Box, you can give your child and Mr. T. a helping hand to get all the coins on the screen into the box. (It's always different, because the coins on the screen are based on the small change you have to hand.)

A chance to teach the Micro a thing or two.

With the Animal, Vegetable, Mineral program, the children can get the computer guessing.

They think of an object. The BBC Micro has to decide what it is.

If it doesn't come up with the answer, the children can keep giving it hints.

In doing so, they are encouraged to question the difference between such things as crocodiles and alligators, or whether oil is vegetable or mineral.

The program also encourages them to consult reference books so that they can ask the computer increasingly tough questions.

Questions on Julius Caesar from J. Julius Norwich.

John Julius Norwich's History Quiz is one of the new BBC Micro Grandmaster quiz series which also covers theatre, crime and detection, music, science fiction and royalty.

On the history front, there are 300 brain-testing questions, covering all aspects of British history from Julius Caesar to Margaret Thatcher.

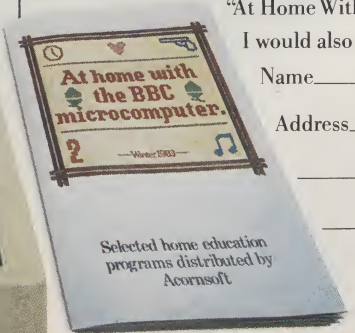
And to increase the educational value, Mr. Norwich has posed the questions from angles which will give a broader understanding of events.

For the full catalogue, clip the coupon.

There are thirty more new BBC Micro programs in Acornsoft's new catalogue.

For a free copy, complete the coupon, or telephone 0933-79300. Or ask your local BBC Micro dealer.

If you're not yet a BBC Micro owner, you can get full details of the computer at the same time.



To Acornsoft, c/o Vector Marketing, Denington Estate, Wellingborough, Northants NN8 2RL. Please send me the new Acornsoft catalogue "At Home With The BBC Microcomputer."

I would also like details of the BBC Micro ☐ (tick)

Name_____

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ACORNSOFT

JUST AROUND THE CORNER, A NEW

BLACK CRYSTAL

The Classic, six program adventure game for the 48K Spectrum and 16K ZX-81 computers. No software collection is complete without it.

"BLACK CRYSTAL is an excellent graphics adventure and a well thought out package" (Sinclair User, April '83).

"BLACK CRYSTAL has impressed me by its sheer quantity and generally high quality of presentation. I am afraid I have become an addict" (Home Computing Weekly, April '83).

SPECTRUM 48K 180K of program in six parts . . . only £7.50
ZX-81 16K over 100K of program in seven parts . . . only £7.50

Why pay more for less of an adventure?

ZX-81 COMPENDIUM

Alien Intruder, Wumpus Adventure, Numerology, Hangman, Hieroglyphics, Movie Mogul.

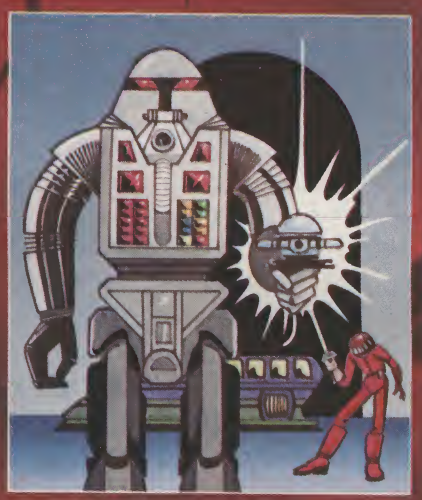
The ideal software package for all 16K ZX-81 owners. Six major programmes on two cassettes for only £6.50.

"Alien Intruder/Hieroglyphics — Both programs make good use of graphics and words to make a very entertaining package." (Sinclair User, Aug '82)

"Alien/Hieroglyphics/Wumpus/Movie — A varied mix from Carnell, all featuring imaginative responses and graphics and all of them good games for all ages (Hieroglyphics is particularly good for children)." (Popular Computing Weekly, Aug '82)

THE ADVENTURES OF ST. BERNARD

An exciting, fast moving, machine code, arcade game where you guide your intrepid St. Bernard through the perils of the icy wastelands to rescue his Mistress from the clutches of the abominable snowman. 48K Spectrum £5.95.



STARFORCE ONE

Take on the robot guardians of the central computer in a superbly stylised three dimensional battle game. 48K Spectrum £5.95.

(100% MACHINE CODE ARCADE ACTION)

THE CRYPT

written by Stephen Renton

Prepare yourself for the many challenges that shall confront you when you dare to enter "THE CRYPT".

You will battle with giant scorpions, Hell spawn, Craners, Pos-Negs and if you are unlucky enough — the Dark Cyclops in this arcade style adventure.

Available now for the 48K Spectrum @ £4.95

THE DEVIL RIDES IN

I uttered the last incantations as the clock struck thirteen. All fell silent except for a faint rustling in the corner. From out of the shadows they came, all Hell's fury against me but I was not defenceless until the Angel Of Death, astride a winged horse, joined the battle. Avoiding his bolts of hell fire, I took careful aim. My chances were slim, but if my luck held . . . 48K Spectrum £5.95.

(Fast moving, machine code, all action, Arcade game)

RANGE FROM CARNELL SOFTWARE

COMING SOON

"THE WRATH OF MAGRA"

The first born has been destroyed. The Black Crystal of Beroth has been banished. The alliance of Evil has been defeated by the armies of Lord Fendal. So ends the Third Age. Now we invite you to write your name in the history of the Fourth Age of the Third Continent.

You will meet friends and enemies, old and new, in the long awaited sequel to Volcanic Dungeon. Using high resolution graphics and combining the best qualities of "Black Crystal" and "Volcanic Dungeon", we will allow you to become part of this tale of revenge.

"The Wrath Of Magra" comes as three, 48K programs on cassette, boxed with instruction manual and book detailing the history of the Third Continent and the many spells you will be using throughout the game.

NOTE: "The Wrath Of Magra" is a complete adventure. You need not buy "Volcanic Dungeon" or "Black Crystal" to play it.

Available through most good computer stores or direct from:
Carnell Software Ltd, North Weylands Industrial Estate, Molesey Road, Hersham, Surrey KT12 3PL.
Dealers: Contact us for your nearest wholesaler.

CARNELL SOFTWARE LTD

The Runaway Robot Replies

Dear *Editor*

The other day I went into W H Smiths and saw your new magazine shining like a beacon amongst all the other computer magazines! At first I thought, 'Oh no, not another one'. But now I've changed my mind. Being a computer and video games addict I thought I might as well buy it. Wow! — Was the first word that came into my mind. It's Great! I like lots of it — the programs you printed, the news section with all the latest software releases, the special features on toys and joysticks and the competitions, and the pretty pictures.

All I can say is: more, more more!!!

Oh no, there is one other thing. As I'm a keen programmer I'd lik to see a bit more on the programming side. How about it?

Looking forward to the next *Games Computing* . . .

John Green
Manchester

Funny you should mention that John because what we are planning to do is start a page which our Software Assistant, Simon Rockman, will help out all budding programmers, or any readers who have trouble of a technical nature with any of the programs printed in the *Games Computing*. (Of course, he's going to make sure that no mistakes creep in to the listings we print but there are almost bound to be points which you would like to take up with some of them). So your chance to actively participate in a regular programming feature will soon be in here to take advantage of. Simon's putting his brainpower to deal with it at this very moment so watch out for it in the next issue of *Games Computing*.

Apart from that there is of course our regular programming feature on learning machine code which all gamesters are keen to do. And another regular hot spot is our series on Wargaming. This will be of interest to all people who like computer war games, which until recently were few and far between for use on home microcomputers.

I hope tht all keeps you out of trouble for a while John!

Dear *Games Computing*

Congratulations on producing an interesting and fun magazine for us computer games players. But why can't you do a cartoon strip like some other mags do? I think they're great fun to read and sometimes very funny to look at too with good drawing done. If you put a cartoon page in your magazine I'll buy it for ever!

Bye . . .
James King
Bath

Thanks for your enthusiasm James and I'm only sorry that we haven't kept everyone happy with the first issue, but we're trying hard! We didn't put a cartoon strip to do with computer games for the very reason you mention — other magazines do just that and we want to be a little bit different.

However, you'll be interested to know that we are working on a special project along the lines of a cartoon but with a difference which we hope will be in *Games Computing* regularly very soon. I can't say too much about it now but it really will be a special sort of cartoon. At this very moment in time our backroom games slaves are working out the nitty gritty of the details.

I hope that will make sure you become one of our regular readers and don't miss a single issue of Games Computing!

Dear Sir or Madam

My young son rushed home with his issue of *Games Computing* clutched in his hands and avidly read the software reviews section. I must admit I sneaked a look at it after I managed to prize it from his fingers and although much of it (the programs) passed over my head I found the review section extremely useful in selecting his Christmas presents. Both the software section (apart from the fact that it was a little difficult on the eye) and the joystick section game me some insight into exactly what is available. Well done!

One word of advice I would like to offer — please can you make less of the violent types of computer games and more of the entertaining ones please. Speaking as a mother I feel that children are being influenced by the violence portrayed by many of these computer games on sale and it is not altogether a good thing.

Yours sincerely
Mrs A Hare
Willsden

Thank you for your letter, Mrs Hare. It is encouraging to hear from people such as yourself and I am glad that you found our first issue helpful, and by the sound of it kept your son occupied for a while! I appreciate your concern about the theme of many computer games involving shooting, killing and general destruction. However, there are two schools of thought on the subject. One is set dead against computer games and the other is not. I believe that children realise that the characters in such games are fictitious mainly as they are so unrealistic that they appear to come from another world. Software firms producing such games certainly don't advocate everyone should gaily go around killing people — indeed there is always a point to the destruction, even if it is only to save a ficticious city from an enemy race. There are also those that reason it is better that people vent their aggression on a television screen via a game than it is to go out and vent it in reality.

At *Games Computing* we put the emphasis on fun. It is also a fact of life that the 'space invader' type of game is still enjoying widespread popularity amongst children who consider it to be a fun game.

We aim to make computer and video games as fun for everyone as possible, and that involves battle type games.

Dear *Games Computing*

First of all, thanks for an exciting new magazine to lift me from the doldrums of computer magazines in general.

I liked your first issue but want to reserve judgement for a few issues yet, but I hope you can keep up the standard you first achieved.

There were a couple of things that struck me when I read *Games Computing*. The first was the Video Games section which I was glad to see in the magazine. The only thing was that most of the games were from Atari and all were for the Atari. Please will you do some for other VCS type systems? Especially the Colecovision (my little brother has one) and the Intellivision (a friend of mine owns one of those). I know that sounds selfish, but I'm sure lots of other people own all these systems too.

Do you want any reviewers for those machines? If you do I would be delighted to help out by writing some for you.

The other thing was on the software review pages. I couldn't read it with those stamps plastered all over the place! You'll have to give some special glasses away with the magazine if you keep doing that.

Yours sincerely
Tim Madden
Burnt Oak

Thanks for your comments Tim. The first issue did include a lot of Atari reviews but we do, in the future, aim to print reviews of games for many of the other VCS machines, including those you mention. In fact, the Colecovision is indeed featured in this month's Video Vying section. So your little brother will be kept happy for a while, at any rate.

Yes, we do want reviewers to put in our file of those with VCS systems. All the popular machines will be catered for on the games review front so anyone that owns an Atari VCS, Intellivision, Colecovision or Philips G7000 can join our elite team.

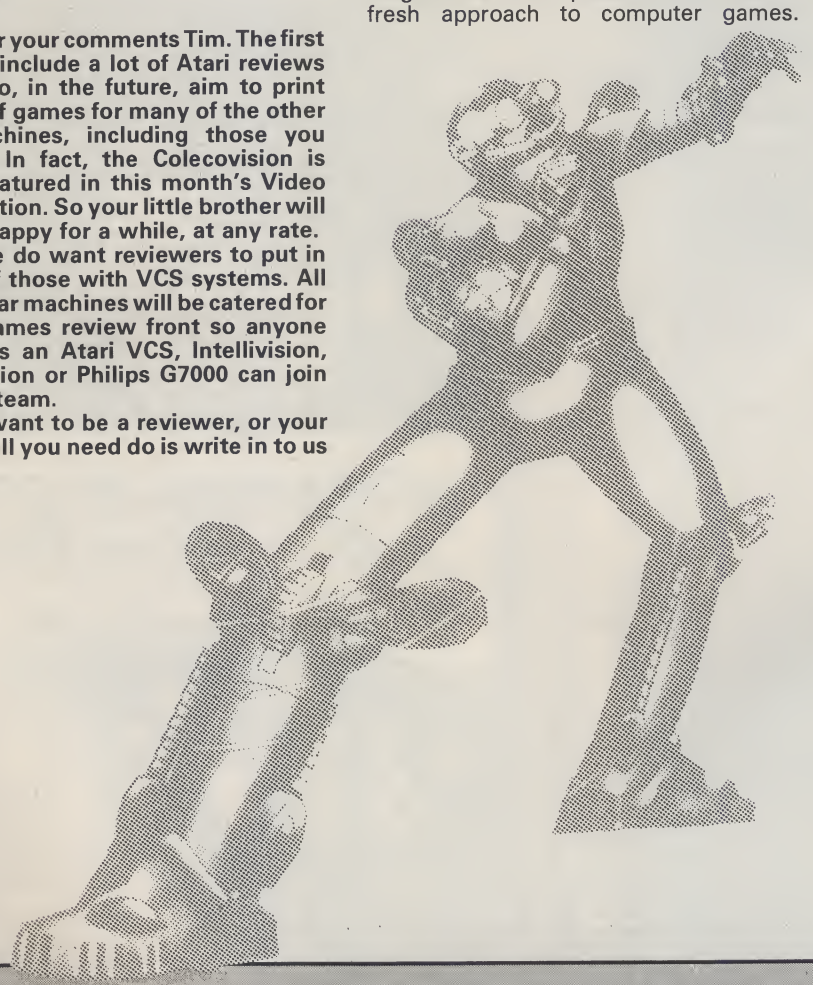
If you want to be a reviewer, or your brother, all you need do is write in to us at *Games Computing* giving details of your own system, what games you would particularly like to review and your address and telephone number.

The same goes for software reviewers too. If anyone owning a computer wants to review software for *Games Computing* write to us at our Golden Square address giving full details of your computer system and the sort of stuff you are interested in reviewing. We'll do our best to let you review what you want. We've got lots of games software just waiting to be packed up and sent off to reviewers so you'd better get in quick if you want to be one of the first!

And now to our software reviews pages. I admit those pages are a shock to the eye at first but it doesn't stop you being able to read what lurks underneath those stamp marks. Our designers of the magazine thought the idea was great, 'a new concept in design' they said, but we'll just chalk it down to experience! Sorry about that folks. We'll try and do better next time.

Dear *Games Computing*

I bought the first issue of your brand new magazine and was pleased to see such a fresh approach to computer games.



You're right — we games playing fanatics do take our computer and video games seriously!

You've hit the nail right on the head. I liked the mixture of programs you put in to the magazine and thought some of them were great, and I especially liked the colourful illustrations to go with them. I hope you're going to keep doing that.

What I wondered about was sending in programs for *Games Computing* to publish in future issues of the magazine. I've thought up quite a few ideas and have written one or two games programs. What do I do about sending them to your magazine? And what sort of programs do you want to put into it?

From: an eager games player
Simon Northcott
Wallington

Well, Simon first of all we're all pleased to hear that you liked our first issue and plan to make sure you continue to enjoy forthcoming copies of it. Yes, we are going to keep putting nice, bright colour illustrations in the magazine — the more the merrier.

Now for the programs. Any program which is a game will suit *Games Computing* right down to the ground. Anything from arcade space games, to adventure games, thinking games, wargames, sports games, maze games and strategy games. They can run on any of the popular home computers like the VIC 20, Spectrum, Commodore 64, BBC B, Electron, ATARI, TI 99/4a and Oric, or for machines like the Sharp, TRS 80 — virtually anything that you think is a popular home computer. We'd love to hear what you think about games programs, and tell us what you'd like to see by sending in your own programs.

As for sending them in to us — all you need to do is fill in the Program Submission form which will be in each issue of *Games Computing*. Make sure you send us all the things asked for on the form. Also you make sure you send it to:

Games Computing,
1 Golden Square, London W1

But to save you all flicking to that page, here's a brief rundown of what to send.

1. **A tape clearly marked with the name of your program and your name.**
2. **Anything that you've written about the program, explanatory notes, details about loading the program, and special features you've cleverly included in your game — really anything which will be useful for other readers to know in order to type in your game.**
3. **The completed Program Submission form taken from the magazine.**
4. **A program listing — with good, clear print — if you can get hold of a printer, or failing that just send us the tape containing your game.**

Have you got any opinions to air, has someone somewhere upset you and you want to grizzle and gripe? Or maybe you're full of the joys of spring and feel like telling a happy story?
Whatever you want to say, be it good, bad or indifferent drop us a line here at Games Computing and get it off your shoulders.
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ZX SPECTRUM

VOL. 2

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PROGRAMS 5-8

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5. THE ROMANS
7. SPELLING TESTER
8. HOMOPHONES

SPECTRUM 16K 48K
FROM 7 YEARS

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11. THE STRUCTURE OF THE FLOWER. This program explains how the parts of the flower are involved in the formation of seeds. This is a three part program which makes full use of high resolution colour graphics.

12. LONG DIVISION. This detailed program takes the learner through long division sums in easy stages. Correction sequences are automatically provided when they are needed. Sums with remainders can be chosen if required.

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ZX SPECTRUM

VOL. 3 FROM 9 YEARS

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CALPAC LEARNING SERIES

PROGRAMS 9-12

9. NOUNS, VERBS, ADJECTIVES AND ADVERBS.
10. VERB PRACTICE
11. THE STRUCTURE OF THE FLOWER
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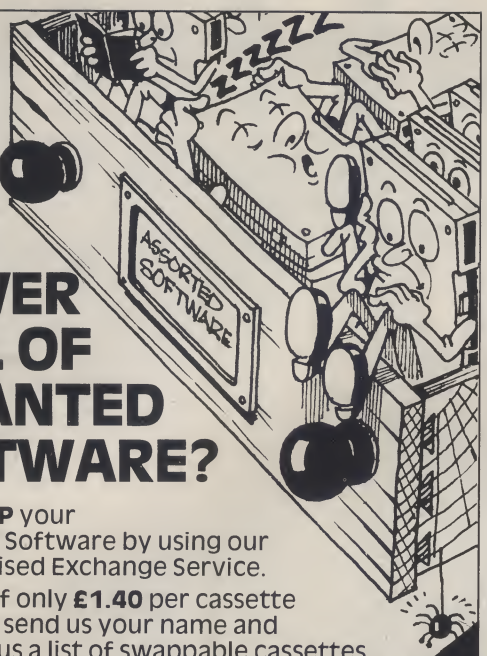

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ISL **INCENTIVE SOFTWARE LTD., 54 London Street, Reading RG1 4SQ. Tel: Reading (0734) 591678**

I've Started

This game, written for the 48K Oric is a non graphical version of the well known board game which relys on coloured pegs and a peg board. If you have ever played MASTERMIND using the coloured peg idea, you will agree with me that it is very frustrating when, half way through a game you run out of pegs or the board tips up and all the pegs fall out. All your problems have now been solved with this amusing, number based version of MASTERMIND.

The idea is exactly the same, so is the scoring. The only thing that is different is that instead of coloured pegs, numbers are used ranging from 0-9.

The main part of the program is creating the hidden code, checking your guess and printing the result. Arrays were chosen to hold the guess and the code rather than variables because arrays are much easier to handle. The contents of an array can be input and checked using for/next loops. This is not possible with variables.

When the program is run, the first thing that you see is the instructions. These instructions explain the idea of the game and how to play. If you are a beginner to the game whether it be computerised or not and are not exactly brilliant at solving a code then you will probably need to have many goes, therefore you input a high number when you are asked to enter the 'number of goes you require'.

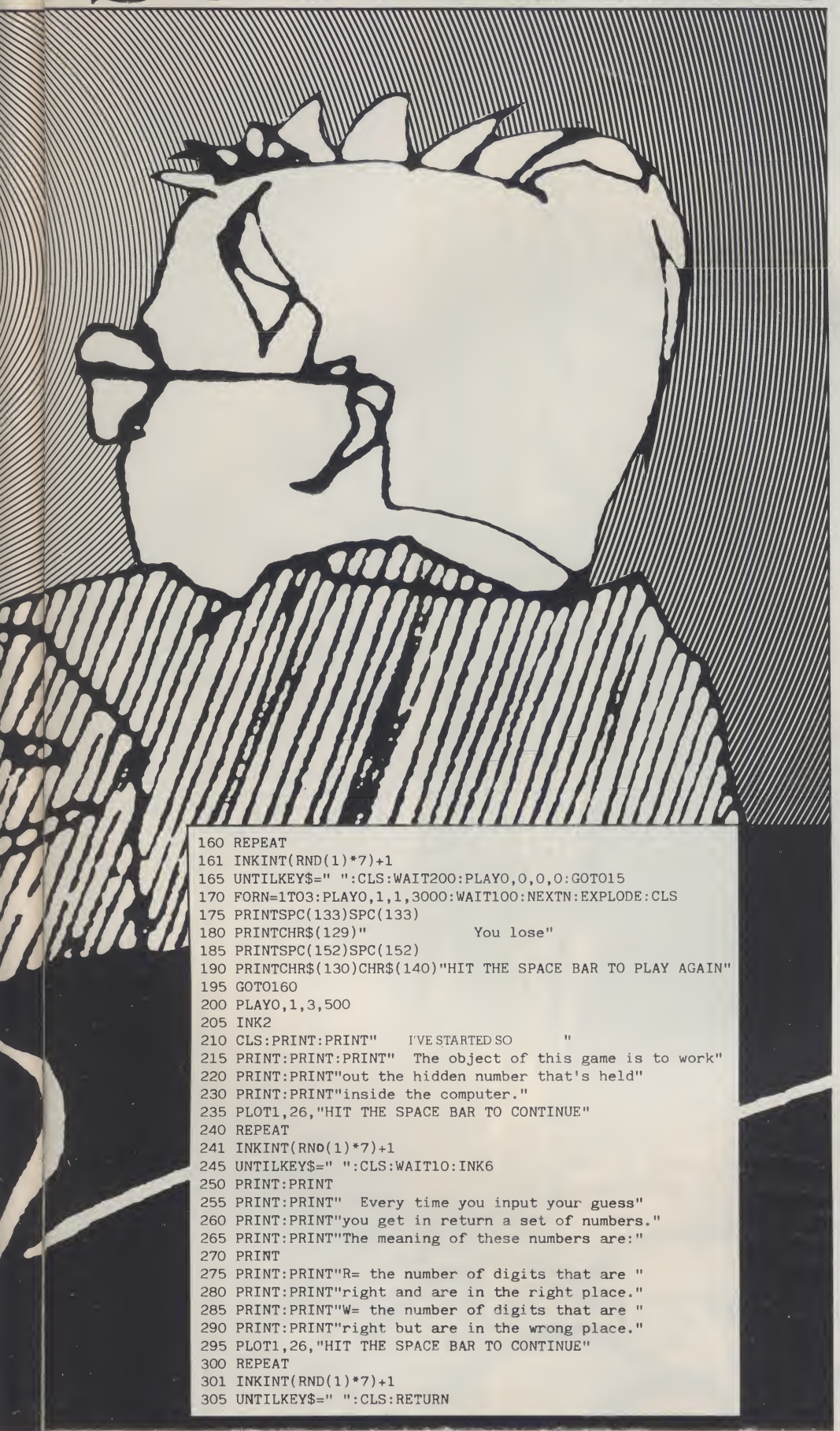
There is no function to allow you to refer back to the instructions during the solving of a code so make sure that you remember what the result that you receive after each guess means. When entering in your guess there is no need to hit return because the GET function is used. But make sure you know what your guess is going to be before you start entering as you cannot delete your entry. The only time you have to hit the return key is when you enter the number of goes you require.

If you like the idea of I've Started So I'll Finish but you don't have an Oric but a different computer then fear not for I have included the functions of most of the lines of the program, explained all the variables and translated some of the Oric BASIC.

```
0 REM
5 POKE#26A,10:PRINTCHR$(20)
10 PAPER0
15 Z=0:R=0:W=0:GOSUB200
20 INK2:PRINT:PLAY0,0,0,0
25 PRINT"ENTER NO. OF GOES YOU REQUIRE"
30 INPUTV$:V=VAL(V$)
35 PLAY1,1,1,300:CLS
40 FORC=1TO4:N(C)=INT(RND(1)*9):NEXTC
45 PRINTCHR$(133)"ENTER GUESS WHEN YOU HEAR THE PING"
50 PRINT
55 FORX=1TOV
60 FORC=1TO4:M(C)=N(C):NEXTC
65 WAIT40:PING
70 FORC=1TO4:GETG(C):PRINTG(C);:NEXTC
75 FORC=1TO4:IFG(C)=M(C)THENM(C)=.9:R=R+1:G(C)=.6
80 NEXTC
85 FORC=1TO4
90 FORD=1TO4:IFM(C)=G(D)THENM(C)=.8:W=W+1:G(D)=.7
95 NEXTD:NEXTC
100 Z=Z+1:PRINTCHR$(131)"                R";R;"      W";W
105 IFR=4THENGOTO130
110 R=0:W=0
115 PRINT
120 NEXTX
125 GOTO170
130 INK5:PLAY1,1,6,100:MUSIC1,6,1,0:CLS:PRINT:PRINT
135 PRINT"Well done! You cracked the code..."
140 PRINT:PRINT"It was  ";N(1);"";N(2);" ;N(3);"";N(4)
145 PRINT:PRINT"It took you ";Z;"tries to solve it...."
150 PRINTSPC(171)SPC(171)
155 PRINTCHR$(140)"HIT THE SPACE BAR TO PLAY AGAIN"
```

5	sets toggle switches to zero and switches off caps lock.
10	sets background colour to black.
15	sets three variables and jumps to the instructions routine.
20	sets foreground colour to red and switches off the sound generator.
30	turns the contents of V$ into a numerical value.
35	makes a noise and clears the screen.
40	produces the four bit code held in array N(C).
65	pauses for 40 × 1 hundreths of one second and makes a ping noise.
70	allows you to enter your guess.
75	checks to see if any digits of your guess are right and in right place.

So I'll Finish...



```
160 REPEAT
161 INKINT(RND(1)*7)+1
165 UNTILKEY$=" ":CLS:WAIT200:PLAY0,0,0,0:GOTO15
170 FORN=1TO3:PLAY0,1,1,3000:WAIT100:NEXTN:EXPLODE:CLS
175 PRINTSPC(133)SPC(133)
180 PRINTCHR$(129)"            You lose"
185 PRINTSPC(152)SPC(152)
190 PRINTCHR$(130)CHR$(140)"HIT THE SPACE BAR TO PLAY AGAIN"
195 GOTO160
200 PLAY0,1,3,500
205 INK2
210 CLS:PRINT:PRINT"    I'VE STARTED SO       "
215 PRINT:PRINT:PRINT"  The object of this game is to work"
220 PRINT:PRINT"out the hidden number that's held"
230 PRINT:PRINT"inside the computer."
235 PLOT1,26,"HIT THE SPACE BAR TO CONTINUE"
240 REPEAT
241 INKINT(RND(1)*7)+1
245 UNTILKEY$=" ":CLS:WAIT10:INK6
250 PRINT:PRINT
255 PRINT:PRINT"  Every time you input your guess"
260 PRINT:PRINT"you get in return a set of numbers."
265 PRINT:PRINT"The meaning of these numbers are:"
270 PRINT
275 PRINT:PRINT"R= the number of digits that are "
280 PRINT:PRINT"right and are in the right place."
285 PRINT:PRINT"W= the number of digits that are "
290 PRINT:PRINT"right but are in the wrong place."
295 PLOT1,26,"HIT THE SPACE BAR TO CONTINUE"
300 REPEAT
301 INKINT(RND(1)*7)+1
305 UNTILKEY$=" ":CLS:RETURN
```

90	checks to see if any digits of your guess are right but in wrong place.
100	prints out the result of your guess.
105	jumps to the win routine if your guess is correct.
125	jumps to the routine for losing.
130	changes foreground colour to magenta, makes a noise and clears the screen.
135-155	prints the win instructions.
160-165	repeats the function of changing the foreground colour until the space bar is pressed.
170	makes a noise three times, pauses for one second.
175-190	prints lose instructions.
200	makes a noise.
205	changes foreground colour to green.
210-235	prints the instructions.
240-245	repeats changing foreground colour until the space bar is hit.
250-295	prints second page of instructions.
300-305	repeats the changing the foreground colour until the space bar is hit then returns.

Variables Used

Z	the number of goes taken.
R	number of numbers right and right place.
W	number of numbers right but wrong place.
V$+V	number of goes required.
N(C)	holding the code.
M(C)	the same as N(C).
G(C)	holding your guess.
D	for/next loop.
X	for/next loop.

These are some of the strange codes and words present in Oric BASIC which have cropped in this program:

SPC(n)	number of spaces (n) from curser.
CHR$(20)	curser off.
CHR$(131)	foreground colour yellow.
CHR$(140)	flashing.
CHR$(129)	foreground coloure red.
CHR$(130)	foreground colour green.

PING, MUSIC control the programmable sound generator.
GET, KEY$ are keyboard entry functions.
WAIT is a pause statement.
PAPER, INK control the background and foreground colours.

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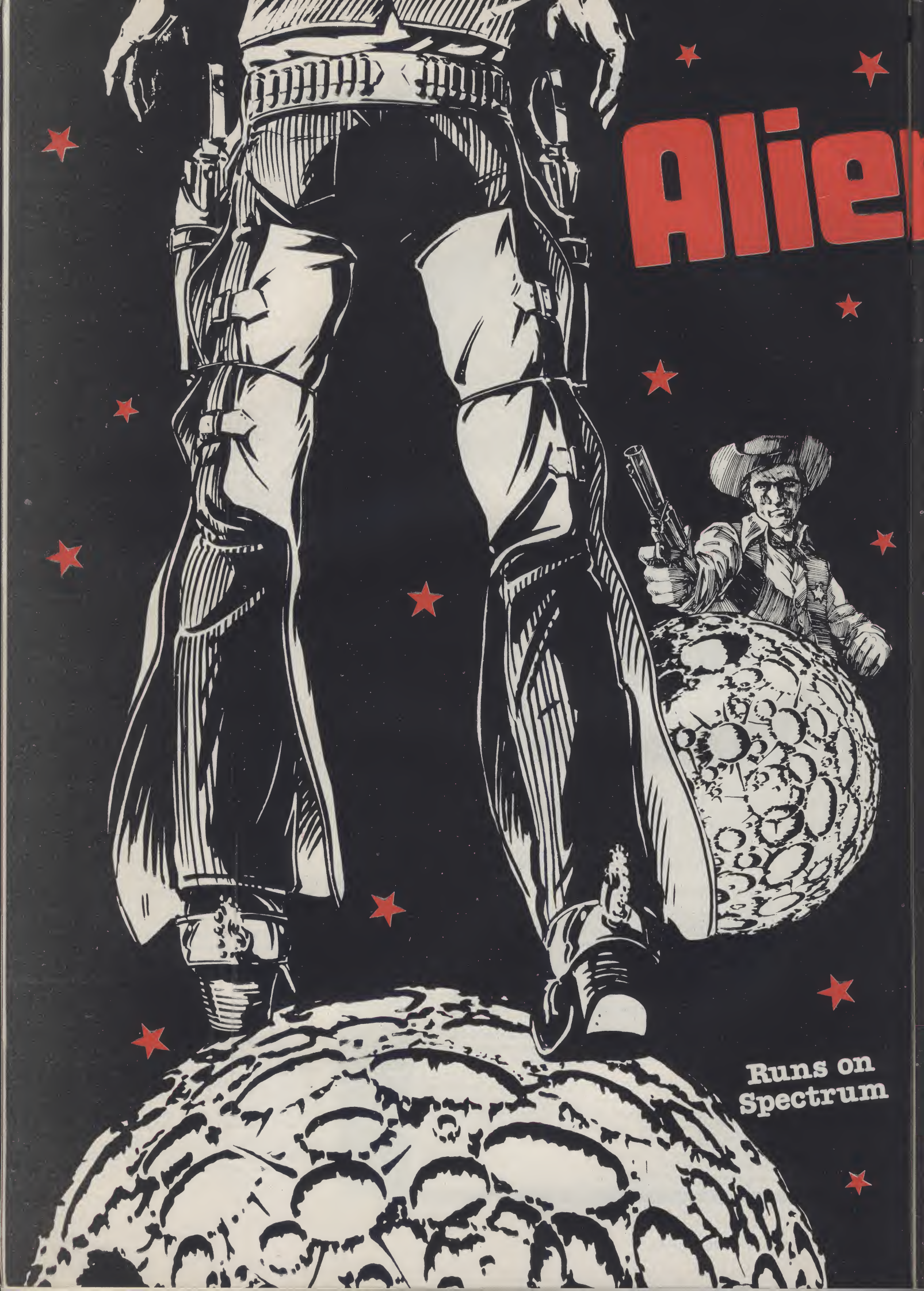

Alie
Runs on
Spectrum

nShowdown

Play at cowboys in space with this great guns game to play on a Spectrum or any other machine come to think of it.

It's you or the alien enemy who must fight for survival in this galactic gun-down for two players to get to grips with. Each player has three lives to tussle with and each operate one space cowboy positioned on either side of the screen. You can both move your spaceman up and down the screen, aiming your gun-slinging arm at the enemy and avoiding his deadly shots.

If you manage to shoot down the enemy space cowboy a rocket flies past and you'll know for sure if you have only one life to play because the screen will suddenly start flashing violently.

When I wrote this game I found the main problem was to maintain a smooth flow of on-screen action. So I had to make sure the spaceman, rocket and firing was programmed on a pixel by pixel basis. To make the action happen quickly I had to use machine code instead of BASIC.

Control your space cowboys by using the following keys:

Player A: (left hand side).
Any key in ROW 1 to 5 will fire.
Any key from Q to T moves UP.
Any key from A to G moves DOWN.
Player B: (right hand side).
Any key in ROW 6 to 0 to fire.
Any key from Y to P moves up.
Any key from M to ENTER to move down.

The program is entered in three parts; the machine code, the graphics and the BASIC.

Enter Program One first of all. This is the machine code program and save both Program One and the machine code. After checking to RUN the machine code type PRINT USR 31000. If it does not work, re-check that you have keyed in Program One correctly.

Now enter Program Two, which contains the graphics of the game. Save both the graphics and program if you wish. You could try making your own graphics to suit your own particular tastes, in which case look at the section I've launched here under Conversion Clues.

RUNdown

Notes in the assembly listing show how the machine code runs. It is fairly simple:

The main routine reads the keyboard. calling the routines as required. It also detects whether the player has run out of lives, or whether or not the rocket should be moved. The most important note is the ROM routine, called at 8874. B is loaded with the Y co-ordinate, C with the X co-ordinate and the routine called. The result is that HL contains the screen address, and the accumulator (A) with the number of the bit (0-7) corresponding to the pixel. For those who are interested in games programming if B is loaded with Y co-ordinate and 8933 called the point is plotted and the HL register contains the address of the ATTRIBUTE and DE is the value of the attribute.

Program 1. This POKES the machine code into the correct memory locations.
Program 2. Sets up the graphics by the same method as program one.
Program 3. Line 10 loads the machine code and graphics.
Lines 20-50 Instructions and input. The speed of the phaser is determined by the length of the sound, the length of the sound is the value POKED to 31516.
Line 100 and the subroutine at 200 creates the alien type scenary, in random blocks with random characters.
110 calls the machine code.
120-130 detects to see who has won
140 gives you the option of having another go.
9999 save routine.

Conversion Clues

This program is written specifically for the Spectrum. The use of machine code makes it difficult to convert, but the assembly listing should help.

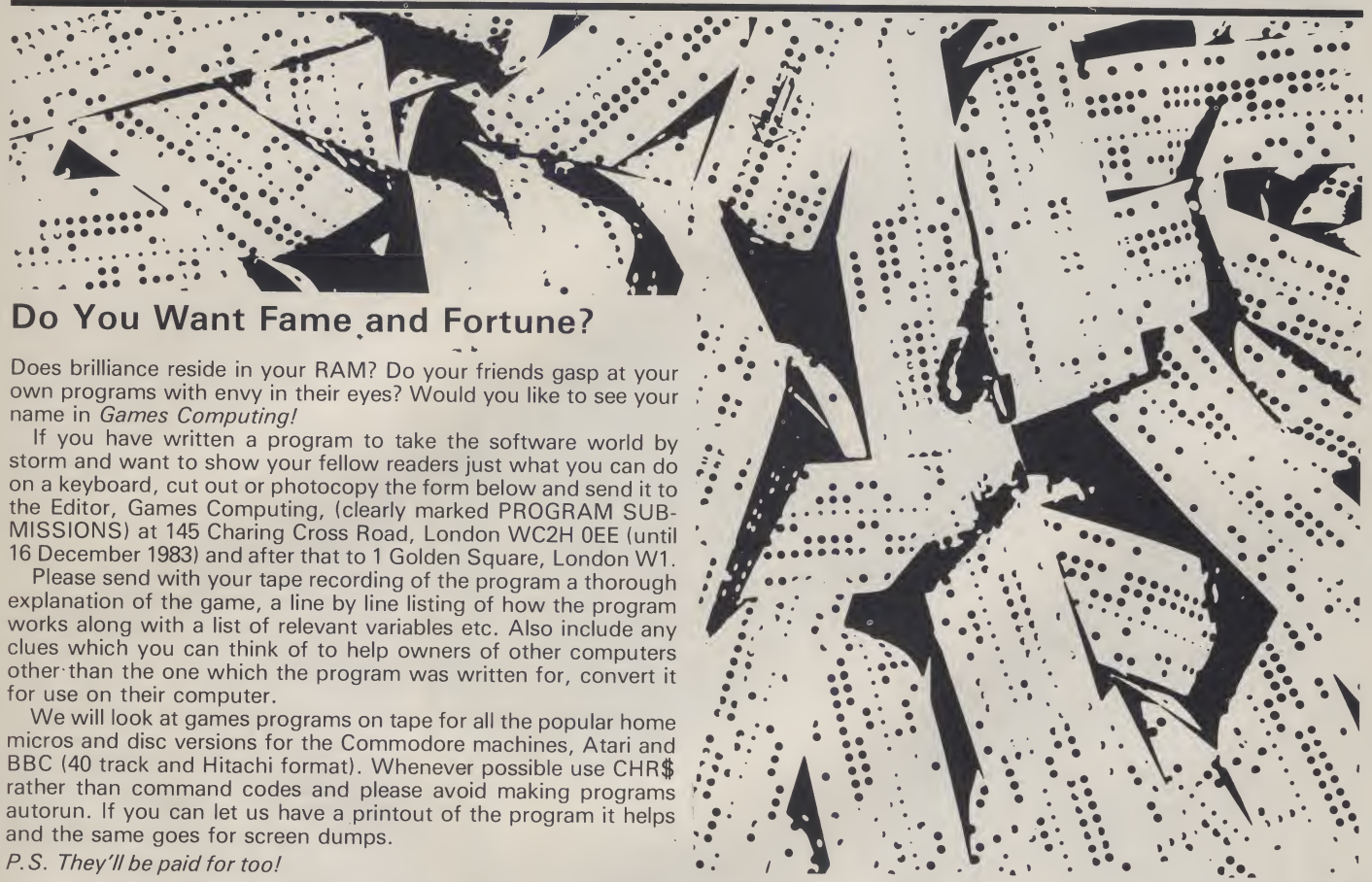
Alien Showdown was written on the 16K Spectrum but it also works on the 48K machine. If you wish to make up your own graphics remember that they must be upside down and on a 48K Spectrum you must POKE 23675,88 POKE 23676,127.

Also note that the highest and lowest lines of the graphics have to be 0 in order to blank out an old position.

```
  10 CLEAR 30999
1000 FOR a=31000 TO 31267: READ q: POKE a,q: NEXT a
1010 DATA 33,100,0,34,20,91,33,88,127,34,10,91,33,136,127,34,16,91,33,184,127,34
,18,91,33,0,0,34,4,91,33,247,0,34,6,91,33,3,3,34,8,91
1011 DATA 1,254,127,237,120,254,255,192,1,254,247,237,120,254,255,196,164,121,1,
254,251,237,120,254,255,196,199,121,1,254,253,237,120,254,255,196,8,122,1,254,23
9,237,120
1012 DATA 254,255,196,214,121,1,254,223,237,120,254,255,196,249,121,1,254,191,23
7,120,254,255,196,22,122,58,9,91,183,200,58,8,91,183,200,58,8,91,254,1,204,48
1013 DATA 122,58,9,91,254,1,204,48,122,24,160,0,0,237,75,4,91,205,120,122,35,35,
1,2,0,205,12,123,126,183,200,33,9,91,53,205,103,122,0,0,0,0,0,0,205,103,122,201,
205
1014 DATA 145,122,33,5,91,126,254,150,200,52,205,46,123,201,237,75,6,91,205,120,
122,0,43,1,0,0,205,12,123,126,183,200,33,8,91,53,205,103,122
1015 DATA 0,0,0,0,0,0
1020 DATA 205,103,122,201,205,128,122,33,7,91,126,254,150,200,52,205,46,123,201,
205,145,122,33,5,91,126,183,200,53,205,46,123,201,205,128,122,33,7,91,126,183,20
0,53,205,46,123,201
1030 FOR a=31280 TO 31393: READ q: POKE a,q: NEXT a
1035 DATA 33,21,91,126,254,150,40,21,52,237,75,20,91,237,67,12,91,237,75,18,91,2
37,67,14,91,205,46,123,201,1,113,123,237,67
1036 DATA 14,91,237,75,20,91,237,67,12,91,205,46,123,1,100,0,237,67,20,91,201,33
,0,64,1,160,23,126,238,255,119,35,11,120,177,32,246,201,120,198,12,71,205,170,34
,201,237,75,6,91,237,67,12,91,237,75,16,91,237,67,14,91,201,237,75,4,91,237
1037 DATA 67,12,91,237,75,10,91,237,67,14,91,201
1040 FOR a=31500 TO 31594: READ q: POKE a,q: NEXT a
1045 DATA 22,28,126,54,0,183,192,54,255,197,213,229,17,100,0,33,100,0,205,181,3,
225,209,193,54,0,9,43,21,122,183,32,225,201,237,75,12,91,237,67,22,91,30,2,22,24
,237,75,12,91,213,205
1046 DATA 170,34,209,237,75,14,91,10,119,3,237,67,14,91,33,13,91,52,21,122,183,3
2,227,58,23,91,50,13,91,58,22,91,198,8,50,12,91,29,123,183,32,206,201
9999 SAVE "M/C LOADER": SAVE "M/C"CODE 31000,600
```

```
  10 FOR a=32600 TO 32767
  20 READ q: IF PEEK a<>q THEN  PRINT a,PEEK a;"  ";q
  30 NEXT a
  50 DATA 0,23,28,28,28,28,28,28
  51 DATA 31,31,31,31,31,31,31,7
  52 DATA 7,31,31,31,31,127,63,0
  53 DATA 0,188,224,224,224,224,224,224
  54 DATA 192,192,192,200,220,255,248,224
  55 DATA 192,248,248,240,240,252,248,0
  56 DATA 0,31,31,3,3,3,7,3
  57 DATA 3,3,3,15,63,3,3,3
  58 DATA 1,7,7,15,7,15,15,0
  59 DATA 0,224,224,96,96,96,224,96
  60 DATA 224,224,224,224,224,224,224,192
  61 DATA 192,240,248,248,248,248,240,0
  62 DATA 0,243,255,255,255,255,255,143
  63 DATA 15,15,15,15,15,15,15,15
  64 DATA 15,15,15,15,15,7,3,1
  65 DATA 0,207,255,255,255,255,255,241
  66 DATA 240,240,240,240,240,240,240,240
  67 DATA 240,240,240,240,240,240,224,192
  68 DATA 128,24,60,126,255,255,126,8,24
  69 DATA 0,0,0,34,34,62,126,255
  70 DATA 25,25,127,254,254,126,24,16
  80 SAVE "UDG LOADER": SAVE "UDG"CODE 32600,168
  10 CLEAR 30999: LOAD "M/C"CODE 31000: LOAD "UDG"CODE USR "a"
  20 PAPER 0: BORDER 0: INK 6: PRINT  FLASH 1;"ALIEN SHOWDOWN"'"STOP THE TAPE"'"
Press any key to continue": PAUSE 0: CLS
  30 PRINT "INSTRUCTIONS"'"The idea of the game is to shoot the opponent "'"You
can withstand three"'" phaser blasts before you die""CONTROLS"'"Person A USE"'"
ROW 1 TO 5 TO FIRE"'"ROW Q TO T TO  MOVE UP"'"ROW A TO G TO  MOVE DOWN"
  40 PRINT "Person B USE"'"ROW 6 TO 0 TO FIRE"'"ROW P TO Y TO  MOVE UP"'"ROW ENT
ER TO G TO  MOVE DOWN"'"Person A is on the (LEFT("'"Press any key to continue":
PAUSE 0: CLS
  50  INPUT "What is person A's Name";a$: INPUT "What is person B's NAME";b$: IN
PUT "Speed of Phaser fire (1 fastest 255 slowest)";e: POKE 31516,e
  60 PRINT "Press any key to start AND may    the best thing win": PAUSE 0: CLS
 100 FOR a=0 TO 20: LET x=RND*18: LET y=RND*26+2: INK RND*3+3: GO SUB 200: NEXT
a: INK 7
 110 RANDOMIZE USR 31000
 120 IF PEEK 23304=0 THEN  PRINT b$;" HAS WON"
 130 IF PEEK 23305=0 THEN  PRINT a$;" HAS WON"
 140 INPUT "ANOTHER GO (y/n)";q$: IF q$="y" OR q$="Y" THEN  GO TO 30
 150 STOP
 200 FOR s=0 TO 5: PRINT AT x+RND*3,y+RND*3;CHR$ ((RND*2)+162): NEXT s: RETURN
9999 SAVE "A.SHOWDOWN" LINE 1: SAVE "M/C"CODE 31000,600: SAVE "UDG"CODE 32600,16
8
```

PROGRAM SUBMISSIONS



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Please send with your tape recording of the program a thorough explanation of the game, a line by line listing of how the program works along with a list of relevant variables etc. Also include any clues which you can think of to help owners of other computers other than the one which the program was written for, convert it for use on their computer.

We will look at games programs on tape for all the popular home micros and disc versions for the Commodore machines, Atari and BBC (40 track and Hitachi format). Whenever possible use CHR$ rather than command codes and please avoid making programs autorun. If you can let us have a printout of the program it helps and the same goes for screen dumps.

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★ PLEASE COMPLETE IN BLOCK CAPITALS

Your Name Age

Program Name

Computer/memory size it runs on

Amount of memory program occupies

Other computers/memory size which your program runs on

Does your game need joysticks? Yes No

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Have you sent your game to another magazine Yes No

Is it original/or a variation on a theme?

Your Address

Telephone Number

Times to contact you

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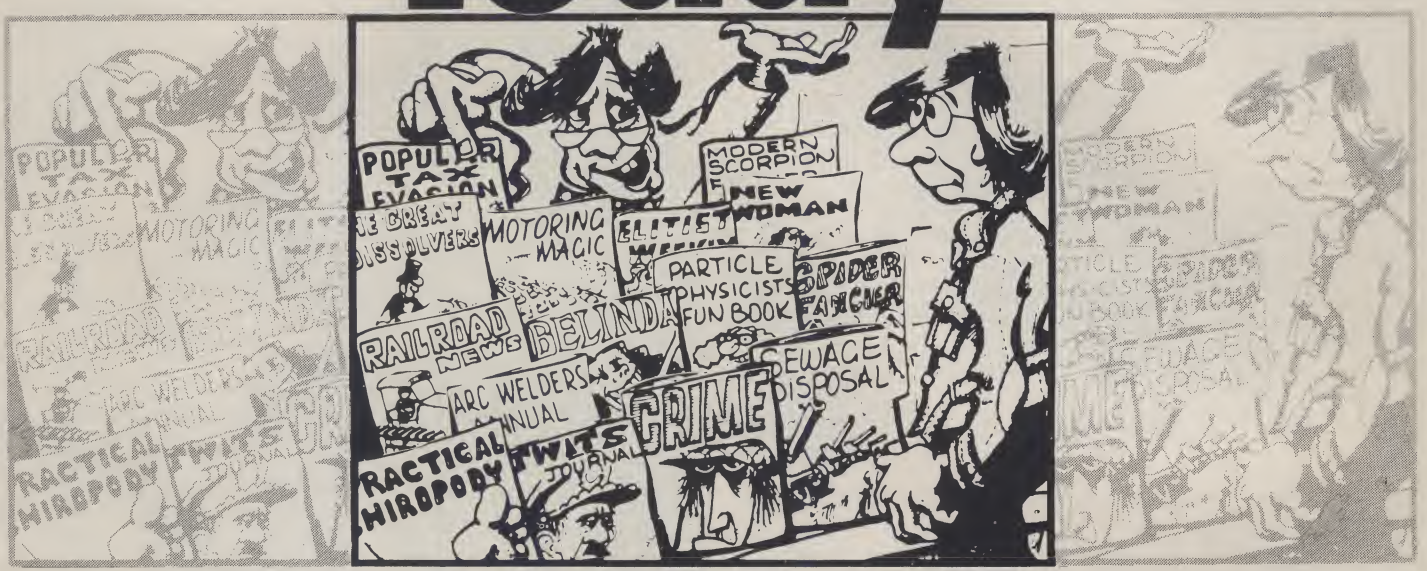

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```
1 POKE 54018,52:REM PUT IN MUSIC TAPE ON
CE PROG LOADED
2 POKE 752,1
4 GRAPHICS 3:GOSUB 500:REM TITLE BLOCK
5 PRINT :PRINT "       SIMPLE SIMON
      ":PRINT "            S.M.HILLEN"
6 GOSUB 542
7 FOR Y=1 TO 200
8 NEXT Y
9 GRAPHICS 0:REM INSTRUCTIONS TO PLAY
10 PRINT "THIS IS THE GAME CALLED
                  SIMPLE SIMON "
15 PRINT :PRINT
20 PRINT "TO PLAY THE GAME :"
25 PRINT :PRINT
30 PRINT "      YOU MOVE THE TRIGGER UP F
OR             HANDS IN THE AIR"
35 PRINT "      YOU MOVE THE TRIGGER LEFT
 FOR           HANDS ON HEAD"
40 PRINT "      YOU MOVE THE TRIGGER RIGH
T FOR          HANDS ON SHOULDERS"
45 PRINT "      YOU MOVE THE TRIGGER DOWN
  FOR          HANDS ON KNEES"
50 PRINT :PRINT
55 PRINT "ONLY DO THIS WHEN SIMON TELLS
YOU"
60 PRINT "                          ----- "
70 PRINT "PRESS THE BUTTON WHEN IT'S YOU
R NAME"
72 PRINT "                                  ---
-"
75 PRINT "TO START PRESS RETURN"
80 DIM A$(255):INPUT A$:IF A$="255" THEN
 85
85 GRAPHICS 3:GOSUB 5000:REM ASKS FOR PL
AYERS NAME
90 PRINT :PRINT "WHAT IS YOUR FIRST NAME
":DIM B$(12):INPUT B$:DIM C$(5):C$="SIMO
N":DIM Z$(12)
91 PRINT :PRINT :PRINT "GOOD LUCK ";;B$
92 GOSUB 542
95 Z3=Z3+1:IF Z3=6 THEN 450:REM NUMBER O
F GOES
96 GRAPHICS 3
110 GOSUB 500
150 POKE 752,1
160 GOSUB 1000:REM RANDOM NO. FOR X&Y
170 IF Y=1 THEN Z$=B$:REM PLAYERS NAME I
S SHOWN
175 IF Y=2 THEN Z$=C$:REM SIMONS NAME SH
OWN
200 IF X=1 THEN PRINT :PRINT Z$;" SAYS H
ANDS IN THE AIR"
210 IF X=2 THEN PRINT :PRINT Z$;" SAYS H
ANDS ON HEAD"
220 IF X=3 THEN PRINT :PRINT Z$;" SAYS H
ANDS ON SHOULDERS"
230 IF X=4 THEN PRINT :PRINT Z$;" SAYS H
ANDS ON KNEES"
250 IF STRIG(0)=0 THEN 250
255 IF STICK(0)=15 THEN 255
260 IF STICK(0)=14 THEN 1200:REM HANDS I
N THE AIR
265 IF STICK(0)=11 THEN 1300:REM HANDS O
N HEAD
270 IF STICK(0)=7 THEN 1400:REM HANDS ON
 SHOULDERS
275 IF STICK(0)=13 THEN 1500:REM HANDS O
N KNEES
280 REM 290 TO 350 GAME LOGIC CHECKS COM
MAND WITH RESPONSE
290 IF X=1 AND STICK(0)=14 THEN 360
295 IF X=2 AND STICK(0)=11 THEN 360
300 IF X=3 AND STICK(0)=7 THEN 360
```

Simon Says...

'Simple Simon' uses an ATARI 400Computer, a 'BASIC' cartridge and a controller. I developed the program as a fund raiser for school fêtes etc. The instructions are in the program. The idea behind the game is to place Simon's hands on his head, shoulders, knees and in the air by using the stick of the controller. The player enters his name and the game begins. If the player's name appears instead of Simon's then the player must hold down the red button on the controller before moving the stick to the position required.

There is some interesting animation, a dog, a lamp post, as well as Simon. The program can be run with a suitable music tape to add interest and to put the contestant off.

The listing follows (the REM instructions need not be typed and are there to explain the program workings.).

```
310 IF X=4 AND STICK(0)=13 THEN 360
320 IF X>1 AND STICK(0)=14 THEN 400
330 IF X<2 OR X>2 AND STICK(0)=11 THEN 4
00
340 IF X<3 OR X>3 AND STICK(0)=7 THEN 40
0
350 IF X<4 OR X>4 AND STICK(0)=13 THEN 4
00
360 GOSUB 2000:REM COUNTER RIGHT
370 END
400 GOSUB 3000:REM COUNTER WRONG
445 REM 450 TO 490 WINNING PRESENTATION
450 PRINT :PRINT :PRINT "   SIMON SAYS W
ELLDONE
YOU HAVE BEATEN ME"
460 GOSUB 7000
470 GRAPHICS 2:PRINT #6,"WELLDONE":POSIT
ION 0,6:PRINT #6,"HAVE ANOTHER GO!"
475 POSITION 6,3:PRINT #6,B$
485 PRINT "PRESS RETURN TO GO AGAIN";:DI
M A3$(255):INPUT A3$:IF A3$="255" THEN 4
70
490 Z3=0:S=0:R=0:GOTO 95
500 COLOR 1:REM MAN
510 PLOT 18,1:DRAWTO 22,1:PLOT 18,1:DRAW
TO 18,4:PLOT 17,2:PLOT 22,1:DRAWTO 22,4:
PLOT 23,2:PLOT 19,5:DRAWTO 21,5
520 PLOT 17,7:DRAWTO 17,11:PLOT 18,7:PLO
T 19,7:DRAWTO 19,12:DRAWTO 17,14:DRAWTO
17,16:PLOT 16,16
525 PLOT 20,6:DRAWTO 20,11
530 PLOT 21,7:DRAWTO 21,12:DRAWTO 23,14:
DRAWTO 23,16:PLOT 24,16:PLOT 18,7:PLOT 2
2,7:PLOT 23,7:DRAWTO 23,11
532 COLOR 2:PLOT 19,2:PLOT 21,2:COLOR 3:
PLOT 20,3:COLOR 2:PLOT 19,4:DRAWTO 21,4
533 REM DOG
```

```
534 COLOR 3:PLOT 6,13:PLOT 7,14:DRAWTO 7
,16:PLOT 8,14:DRAWTO 11,14:PLOT 12,13:PL
OT 12,11:PLOT 13,12
536 PLOT 11,15:DRAWTO 11,16
538 COLOR 1:PLOT 30,1:DRAWTO 30,16:PLOT
29,3:DRAWTO 31,3:COLOR 2:PLOT 29,4:PLOT
31,4:PLOT 29,2:PLOT 31,2
539 COLOR 1:PLOT 29,1:PLOT 31,1:PLOT 29,
5:PLOT 31,5:PLOT 1,17:DRAWTO 39,17
540 RETURN
542 FOR Y2=1 TO 90:REM MAN SPEAKS DOG WA
GS TAIL
545 COLOR 0:PLOT 6,13:COLOR 3:PLOT 7,13:
COLOR 0:PLOT 7,13:COLOR 3:PLOT 6,13
546 COLOR 0:PLOT 19,4:DRAWTO 21,4:COLOR
3:PLOT 19,4:DRAWTO 21,4
547 NEXT Y2
550 RETURN
700 PRINT "YOU ARE OUT"
710 END
1000 X=0:X=INT((RND(4)*10)+0.5)
1005 IF X>4 THEN 1000
1007 IF X<1 THEN 1000
1010 Y=0:Y=INT((RND(4)*10)+0.5)
1015 IF Y>2 THEN 1010
1017 IF Y<1 THEN 1010
1020 RETURN
1200 REM HANDS IN AIR
1210 PLOT 16,6:DRAWTO 13,3:PLOT 13,2:PLO
T 24,6:DRAWTO 27,3:PLOT 27,2
1220 COLOR 0:PLOT 17,8:DRAWTO 17,11:PLOT
 23,8:DRAWTO 23,11
1230 GOTO 290
1300 REM HANDS ON HEAD
1310 PLOT 24,6:PLOT 25,5:DRAWTO 23,3:PLO
T 16,6:PLOT 15,5:DRAWTO 17,3
1320 COLOR 0:PLOT 17,8:DRAWTO 17,11:PLOT
 23,8:DRAWTO 23,11
1330 GOTO 290
1400 REM HANDS ON SHOULDERS
1410 PLOT 16,7:PLOT 15,7:DRAWTO 15,5:DRA
WTO 17,5:PLOT 17,6:PLOT 24,7:PLOT 25,7:D
RAWTO 25,5:DRAWTO 23,5:PLOT 23,6
1420 COLOR 0:PLOT 17,8:DRAWTO 17,11:PLOT
 23,8:DRAWTO 23,11
1430 GOTO 300
1500 REM HANDS ON KNEES
1510 COLOR 0:PLOT 17,7:DRAWTO 17,12:PLOT
 23,7:DRAWTO 23,12
1520 COLOR 1:PLOT 17,8:DRAWTO 15,10:DRAW
TO 17,12:PLOT 23,8:DRAWTO 25,10:DRAWTO 2
3,12
1530 GOTO 310
2000 REM COUNTER
2002 IF Y=1 AND STRIG(0)=1 THEN 3000
2003 IF Y=2 AND STRIG(0)=0 THEN 3035
2005 R=R+1
2010 GOSUB 542
2040 GOTO 95
3000 REM COUNTER
3010 IF Y=2 AND STRIG(0)=0 THEN 3035
3020 IF Y=1 AND STRIG(0)=1 THEN 3035
3030 IF Y=2 AND STRIG(0)=1 THEN 3035
3035 GRAPHICS 2:S=S+1
3040 POSITION 1,1:PRINT #6;"YOU
          ARE                    OUT!!!!!!
!!            ";B$
3045 POSITION 1,6:PRINT #6;"YOUR SCORE
          WRONG=";S:POSITION 2,8:PRINT #6
;"RIGHT=";R
3048 PRINT :PRINT "        TRY AGAIN  ";B
$;"!"
3050 FOR Q9=1 TO 500
3055 NEXT Q9
3060 GOSUB 6000
```

```
3065 RUN
5000 GRAPHICS 3:COLOR 2:REM MAN SALUTES
5005 PLOT 18,1:DRAWTO 22,1:PLOT 18,1:DRA
WTO 18,4:PLOT 17,2:PLOT 22,1:DRAWTO 22,4
:PLOT 23,2:PLOT 19,5:DRAWTO 21,5
5010 PLOT 17,7:DRAWTO 17,11:PLOT 18,7:PL
OT 19,7:DRAWTO 19,12:DRAWTO 17,14:DRAWTO
 17,16:PLOT 16,16
5015 PLOT 20,6:DRAWTO 20,11
5020 PLOT 21,7:DRAWTO 21,12:DRAWTO 23,14
:DRAWTO 23,16:PLOT 24,16:PLOT 18,7:PLOT
22,7:PLOT 23,7:DRAWTO 23,11
5025 COLOR 2:PLOT 19,2:PLOT 21,2:COLOR 3
:PLOT 20,3:COLOR 2:PLOT 19,4:DRAWTO 21,4
5030 COLOR 1:PLOT 30,1:DRAWTO 30,16:PLOT
 29,3:DRAWTO 31,3:COLOR 2:PLOT 29,4:PLOT
 31,4:PLOT 29,2:PLOT 31,2
5038 COLOR 3:PLOT 6,13:PLOT 7,14:DRAWTO
7,16:PLOT 8,14:DRAWTO 11,14:PLOT 12,13:P
LOT 12,11:PLOT 13,12
5039 PLOT 11,15:DRAWTO 11,16
5040 COLOR 1:PLOT 29,1:PLOT 31,1:PLOT 29
,5:PLOT 31,5:PLOT 1,17:DRAWTO 39,17:D=1
5042 FOR W3=1 TO 200
5043 NEXT W3
5045 COLOR 0:PLOT 17,11:DRAWTO 17,8
5050 COLOR 2:PLOT 17,6:DRAWTO 15,4:DRAWT
O 18,1
5060 RETURN
6000 GRAPHICS 3:COLOR 2:REM MAN . DOG WA
LKS TO LAMP POST AND LIFTS LEG AND WAGS
TAIL
6001 IF Z3=11 THEN 6005
6002 PRINT :PRINT "      SIMON HAS WON NE
XT GO PLEASE     "
6005 PLOT 18,1:DRAWTO 22,1:PLOT 18,1:DRA
```

imon Says...

```
WTO 18,4:PLOT 17,2:PLOT 22,1:DRAWTO 22,4
:PLOT 23,2:PLOT 19,5:DRAWTO 21,5
6010 PLOT 17,7:DRAWTO 17,11:PLOT 18,7:PL
OT 19,7:DRAWTO 19,12:DRAWTO 17,14:DRAWTO
 17,16:PLOT 16,16
6015 PLOT 20,8:DRAWTO 20,11
6020 PLOT 21,7:DRAWTO 21,12:DRAWTO 23,14
:DRAWTO 23,16:PLOT 24,16:PLOT 18,7:PLOT
22,7:PLOT 23,7:DRAWTO 23,11
6025 COLOR 2:PLOT 19,2:PLOT 21,2:COLOR 3
:PLOT 20,3:COLOR 2:PLOT 19,4:DRAWTO 21,4
6030 COLOR 1:PLOT 30,1:DRAWTO 30,16:PLOT
 29,3:DRAWTO 31,3:COLOR 2:PLOT 29,4:PLOT
 31,4:PLOT 29,2:PLOT 31,2
6040 COLOR 1:PLOT 29,1:PLOT 31,1:PLOT 29
,5:PLOT 31,5:PLOT 1,17:DRAWTO 39,17:D=1
6045 COLOR 3:D=D+1:FOR J=1 TO 10
6050 PLOT 6+D,13:PLOT 7+D,14:DRAWTO 7+D,
16:PLOT 8+D,14:DRAWTO 11+D,14:PLOT 12+D,
13:PLOT 12+D,11:PLOT 13+D,12
6055 PLOT 11+D,15:DRAWTO 11+D,16
6057 NEXT J
6058 IF D>=21 THEN 6100
6059 IF D<21 THEN 6060
6060 COLOR 0:PLOT 11+D,15:DRAWTO 11+D,16
6070 PLOT 6+D,13:PLOT 7+D,14:DRAWTO 7+D,
16:PLOT 8+D,14:DRAWTO 11+D,14:PLOT 12+D,
13:PLOT 12+D,11:PLOT 13+D,12
6072 COLOR 1:PLOT 30,16:DRAWTO 30,10
6073 COLOR 2:PLOT 19,11:PLOT 19,12:DRAWT
O 17,14:DRAWTO 17,16:PLOT 16,16
6074 COLOR 2:PLOT 20,11:DRAWTO 21,11:DRA
WTO 21,12:DRAWTO 23,14:DRAWTO 23,16:PLOT
 24,16
6075 GOTO 6045
6100 COLOR 0:PLOT 7+D,13:DRAWTO 7+D,16
6105 FOR J1=1 TO 30
6110 COLOR 3:PLOT 7+D,13:DRAWTO 7+D,10
6115 NEXT J1
6120 COLOR 0:PLOT 7+D,13:DRAWTO 7+D,10
6125 COLOR 3:PLOT 7+D,13:DRAWTO 7+D,16
6130 FOR W9=1 TO 100
6135 COLOR 0:PLOT 28,13:PLOT 27,13:COLOR
 3:PLOT 28,13:COLOR 0:PLOT 28,13:COLOR 3
:PLOT 27,13:NEXT W9
6140 RETURN
7000 FOR Y6=1 TO 2:REM MAN CHEERS DOG WA
GS TAIL
7002 COLOR 0:PLOT 17,8:DRAWTO 15,10:DRAW
TO 17,12:PLOT 23,8:DRAWTO 25,10:DRAWTO 2
3,12
7005 COLOR 0:PLOT 17,8:DRAWTO 17,11:PLOT
 23,8:DRAWTO 23,11
7006 COLOR 0:PLOT 16,4:PLOT 24,4
7007 FOR Y3=1 TO 20
7008 COLOR 0:PLOT 6,13:COLOR 2:PLOT 7,13
:COLOR 0:PLOT 7,13:COLOR 2:PLOT 6,13
7009 COLOR 1
7010 PLOT 16,6:DRAWTO 13,3:PLOT 13,2:PLO
T 24,6:DRAWTO 27,3:PLOT 27,2
7011 COLOR 0:PLOT 19,4:DRAWTO 21,4:COLOR
 2:PLOT 19,4:DRAWTO 21,4
7014 NEXT Y3
7015 COLOR 0
7020 PLOT 16,6:DRAWTO 13,3:PLOT 13,2:PLO
T 24,6:DRAWTO 27,3:PLOT 27,2
7025 COLOR 1
7027 FOR Y4=1 TO 20
7028 COLOR 0:PLOT 6,13:COLOR 3:PLOT 7,13
:COLOR 0:PLOT 7,13:COLOR 3:PLOT 6,13
7029 COLOR 1
7030 PLOT 16,7:PLOT 15,7:DRAWTO 15,5:DRA
WTO 17,5:PLOT 17,6:PLOT 24,7:PLOT 25,7:D
RAWTO 25,5:DRAWTO 23,5:PLOT 23,6
7031 COLOR 0:PLOT 19,4:DRAWTO 21,4:COLOR
 2:PLOT 19,4:DRAWTO 21,4
7034 NEXT Y4
7035 COLOR 0
7040 PLOT 16,7:PLOT 15,7:DRAWTO 15,5:DRA
WTO 17,5:PLOT 17,6:PLOT 24,7:PLOT 25,7:D
RAWTO 25,5:DRAWTO 23,5:PLOT 23,6
7045 NEXT Y6
7050 COLOR 1
7055 PLOT 16,7:PLOT 15,7:DRAWTO 15,5:DRA
WTO 17,5:PLOT 17,6:PLOT 24,7:PLOT 25,7:D
RAWTO 25,5:DRAWTO 23,5:PLOT 23,6
7060 RETURN
```

Towers of Brahma

A scintillating puzzle to stretch the brain cells takes the form of Towers of Brahma. The object of the program is to solve a puzzle set by a Hindu diety, Brahma, in the shortest number of moves and the quickest possible time.

The puzzle involves three towers labelled A,B, and C and also a certain number of rings, with each ring having a certain weight. To solve the puzzle the rings which are placed on tower A by the computer have to be transferred to tower C. But this is not as easy as you think because a ring which has a larger weight cannot be put on a ring which has a smaller weight. The computer will give you a choice of the number of rings you wish to transfer. The greater number of rings you pick the harder the puzzle becomes. After the puzzle has been solved, the computer prints out how many moves it took the user to solve it and how much time. Then it will ask the user if he would like to replay to beat his previous time. A ring is presented by a number and that number is its weight. No ring is represented by the number 0. This program also includes sound.

RUNdown

Line	Action
10-220	are the instructions.
240	inputs the number of rings.
260	sets the clock to 0 and makes an array for the towers and rings.
270	prints the towers and the rings.
290-320	inputs from which tower is the ring going to be moved.
350-380	inputs to which tower the ring is going to be moved.
390-420	checks for an illegal move.
430	moves the ring.
500-889	are the ending routine.
900	is the sound routine.

Conversion clues

Conversion should not be difficult if the computer has dim and data commands. The only two problems are: the cursor commands as shown in Fig. 1.

```
1 THE CURSOR COMMANDS:-

■ CURSOR RIGHT

■ CURSOR DOWN

□ CURSOR CLEAR SCREEN

□ CURSOR UP

■ CURSOR PRINT IN REVERSE MODE
```

And the POKE (sound) positons. These should only be entered if the computer has sound. 'POKE 36878,15' sets the volume and 'POKE 36876,200' sets the pitch. If the computer does not have sound type in for line 900 and line 30:

900 Return
30 Next

THE TOWERS OF BRAHMA

```
5 REM**BY N.M.JAYAKUMAR (C)1983**
10 PRINT"■":FORA=1TO42:PRINT:FORB=1TO99:NEXT:IFA=19THENPRINT"          PRESENTS"
20 IFA=17THENPRINT"   NAGARAJ JAYAKUMAR"
30 NEXT:POKE36878,15
50 FORA=1TO19:PRINT:FORB=1TO99:NEXT:IFA=4THENPRINT"        T  H  E"
60 IFA=8THENPRINT"   T  O  W  E  R  S"
70 IFA=12THENPRINT"         O  F"
80 IFA=16THENPRINT"B   R   A   H   M   A"
90 NEXT
100 FORA=1TO1000:NEXT:FORA=1TO109:READA$:PRINTA$;:FORB=1TO200:NEXT:NEXT
110 DATA"■■M",A,N,Y," Y",E,A,R,S," A",G,O," I",N," ■■■■I",N,D,I,A," T",H,E,R,E,
" L",I,V
120 DATAE,D," A ■  H",I,N,D,U," D",E,I,T,Y," C",A,L,L,E,D,"    ■BRAHMA.H",E," G"
,A,V,E
130 DATA" H",I,S,"    ■D",I,S,C,I,P,L,E,S," A D",I,F,F,I,C,U,L,T,"■■P",R,O,B,L,E
,M," W"
140 DATAH,I,C,H," Y",O,U," A",R,E,"■ A",B,O,U,T," T",O," T",R,Y," A",N,D,"   ■
 S",O,L
150 DATAV,E,".":FORA=1TO506:PRINT" ";:NEXT:PRINT
160 PRINT"WHAT YOU HAVE TO DO IS■TRANSFER RINGS FROM A■ TOWER  INTO ANOTHER ■  T
OWER."
170 PRINT"■THERE ARE 3 TOWERS:- ■ A,B,C. THE RINGS HAVE■ TO BE TRANSFERED FROM■"
180 PRINT"TOWER A TO TOWER C"
190 PRINT"■■PRESS A KEY":V=-1
200 GETA$:IFA$=""THEN200
210 GOSUB900:PRINT"■■■EACH RING HAS A NUMBER■AND YOU CANNOT PLACE A■LARGER RING
ON A ■"
220 PRINT"SMALLER RING.          ■■PRESS A KEY"
230 GETA$:IFA$=""THEN230
240 GOSUB900:CLR:PRINT"■■■HOW MANY RINGS WOULD  ■YOU LIKE(5-9)";:INPUTA:GOSUB900
250 IFA<5ORA>9THEN240
260 TI$="000000":DIMB(3,A+1):FORC=1TOA:B(1,C)=C NEXT
270 V=V+1:PRINT"■":FORH=1TOA:GOSUB900:PRINT"  ";B(1,H);"    ";B(2,H);"    ";B(3,
H):NEXTH
280 PRINT"■   A       B       C":PRINT"■-------------------"
285 FORP=1TOA:IFB(3,P)<>PTHEN290
287 NEXT:GOTO500
290 PRINT"FROM WHICH TOWER IS   THE RING TO MOVE?"
300 GETA$:IFA$=""THEN300
310 GOSUB900:Z=ASC(A$):IFZ=65ORZ=66ORZ=67 THENGOTO330
320 PRINT"■■":GOTO290
330 Z=Z-64:FORY=1TOA:IFB(Z,Y)<>0THEN350
340 NEXT:PRINT"■■THERE ARE NO RINGS IN TOWER "A$"              ":FORT=1TO5000:NEXT
:GOTO270
350 PRINT"■■TO WHICH TOWER HAS    THE RING TO GO?                    "
360 GETB$:IFB$=""THEN360
370 GOSUB900:X=ASC(B$):IFX=65ORX=66ORX=67THEN390
380 PRINT"■";:GOTO350
390 X=X-64:FORW=1TOA:IFB(X,W)<>0THEN405
400 NEXT
405 IFZ=XTHENGOTO270
410 IFB(X,W)<B(Z,Y)ANDB(X,W)<>0ANDW<>A+1THENPRINT"■■■THE RING IS TOO LARGE TO GO
 ON TOWER "B$
420 IFB(X,W)<B(Z,Y)ANDB(X,W)<>0ANDW<>A+1THENFORT=1TO2500:NEXT:GOTO270
430 B(X,W-1)=B(Z,Y):B(Z,Y)=0
440 GOTO270
500 FORQ=1TO50:PRINT"■■CONGRATULATIONS":NEXT
510 PRINT"■■YOUR TIME IS "TI$"    SECONDS":PRINT"■YOU TOOK"V"MOVES."
520 FORT=1TO5000:NEXT
600 PRINT"■■■■TRY AGAIN TO BETTER   YOUR TIME":INPUTA$
610 IFA$="YES"THENRUN240
620 IFA$="NO"THEN899
630 PRINT"■I DO NOT UNDERSTAND   USE (YES OR NO)":GOTO600
899 END
900 POKE36876,200:FORR=1TO200:NEXT:POKE36876,0:RETURN
```

SOLITAIRE

Runs on Atom

```
>L
  10CLEAR0,S=48,?#E1=0,@=1,DIMBB150,GG3,RR1,P-1
  30A=0;B=0;P $21,[, RR0 JSR #FFE3,STA #80,RTS,]
  35[,RR1 JSR #FE71,STY #81,RTS,];P $6;G.5000
  40CLEAR0,GOS a;?#E1=0;L=0;M=-1
 100P.$30;?#E0=22;P."MOVE";F.B=0TO7;B?#8055=64;N.;P $10
 105?#E0=22;P."          ";?#E0=27;P.''''';?#E0=20,P."PEGS"
 106P." LEFT   ",$8,$8,S,LINK RR0;M=M+1,IFI=0,IF?#80=90 G z
 108IF?#80=76 G.I
 110GG(0)=?#80-49,IFGG(0)<0ORGG(0)>7G.100
 120?#8055=?#80
 125LINK RR0;GG(1)=?#80-65;IFGG(1)<0ORGG(1)>7G.125
 130?#8056=?#80-64
 133?#8058=20;?#8059=15
 135LINK RR0,GG(2)=?#80-49;IFGG(2)<0ORGG(2)>7G 135
 140?#805B=?#80
 145LINK RR0;GG(3)=?#80-65;IFGG(3)<0ORGG(3)>7G.145
 150?#805C=?#80-64
 160E=#8022+(GG(1)*32)+(GG(0)*2);F=#8022+(GG(3)*32)+(GG(2)*2)
 172P.$10,$8,$8,$8,$8,$8;H=((F-E)/2)+E;IF?H=#2E G.b;REM
 175IF?F=#4F;G.b
 176IF?E=#2E;G.b
 190IFF-E=4;E?2=#2E,G.c
 200IFE-F=4;E?-2=#2E;G.c
 210IFF-E=#40;E?32=#2E;G.c
 220IFE-F=#40;E?-32=#2E;G.c
 225G.b
 230c?E=#2E;?F=#4F;S=S-1;I=0
 240BB(L)=E;L=L+1;BB(L)=F;L=L+1;BB(L)=H;L=L+1;G.100
 600z?E=#4F;?F=#2E;?H=#4F;F.A=0TO20;P.$30,$10;?#E0=20;I=1
 605P."CANCELLED";WAIT;?#E0=20;P."          ";N.;S=S+1;L=L-3
 606M=M-1;G.100
 790IGOS.a;F.A=0TO64;A?#8180=64;N.;P.$30;F.A=0TO11;P.$10;N.
 792P."KEY 1 TO REPLAY"'"     2 TO QUIT."
 793LINK RR0;IF?#80=49 G.800
 794IF?#80=50;P.$12,"GOODBYE";END
 795G.793
 800?#E0=0;P.$11,"PRESS S TO STOP REPLAY"'"                    "
 801O=48
 802F.L=0TO3*(47-S)S.3 ;E=BB(L);F=BB(L+1);H=BB(L+2)
 805P.$30,$10,$10,$10,$10,$10,$10;?#E0=30;P.O,IFO(10 P." "
 806F.A=0TO50;LINK RR1;IF?#81=#33 G.816
 810WAIT;N.;?E=#2E;?F=#4F;?H=#2E;O=O-1,N.;F.A=0TO64;A?#8180=64
 814N.
 816P.$30;F.A=0TO11;P.$10;N.;P."KEY Z TO RE-ENTER MOVE"'"     "
 817P."L TO QUIT";M=(L/3);S=48-M;G.100
1000aP.$30;?#E1=0
1010P.$9," 1 2 3 4 5 6 7 8"'"A"'"B"'"C"'"D"'"E"'"F"'"G"'"H"
1020F.A=0TO14S.2;A?#8022=#4F;A?#8042=#4F;A?#80E2=#4F
1030A?#8102=#4F;N.;F.A=0TO96S.32;A?#8062=#4F;A?#8064=#4F
1045A?#8066=46;A?#8068=46;A?#806A=46;A?#806C=46;A?#8070=#4F
1050A?#806E=#4F;N.;P.$30;F.A=0TO11;P.$10;N.
1070P."KEY Z TO RE-ENTER MOVE"'"     L TO QUIT OR REPLAY";R.
1990bF.A=0TO20;P.$30,$10;I=1
2000?#E0=22;P."ILLEGAL";WAIT;?#E0=22;P."          ";N.;M=M-1;G.100
5000F.A=-1TO62S.8;MOVEA,0;DRAWA,48;N.;F.A=-1TO46S.4;MOVE0,A
5010DRAW64,A;N.;P.$30''''''';?#E0=6;P."SQUARE    SOLITAIRE"
5050F.A=0TO500;WAIT;N.;P.$12;?#E1=0
5100P."PRESS 1 FOR INSTRUCTIONS."'"       2 TO START"'
5110LINK RR0;IF?#80=50 G.40
5120IF?#80=49 G.5140
5130G.5100
5140P.$12," THE OBJECT OF THIS GAME IS TO"'" REMOVE AS "
5145?#E1=0
5150P."MANY PIECES AS"'" POSSIBLE BY HORIZONTAL OR"'
5155P." VERTICAL JUMPS. WHEN "
5170P."A PIECE IS JUMPED OVER IT IS TAKEN. YOUR   TARGET "
5180P."IS TO BE LEFT WITH ONLY  ONE PIECE ON THE BOARD. "
5190P."THE      COMPUTER  REJECTS ALL ILLEGAL    MOVES !!"'
5200P." PIECES ARE MOVED BY INPUTTING"'" THEIR CO-ORDINATES"''
5210 P."PRESS ANY KEY FOR DEMONSTRATION OF CO-ORDINATES"
5220 LINK RR0;CLEAR0;?#E1=0;GOS.a;?#8048=24;?#8088=25;P.$30,$10
5240?#E0=20;P."TO MOVE FROM",$10;?#E0=22;P."X  TO  Y",$10
5250?#E0=24;P."INPUT",$10;?#E0=22;P."4 B  4 D",$10;?#E0=20
5260P."(4B=X  4D=Y)"''',"ALWAYS INPUT THE NUMBER BEFORE  THE "
5270P."LETTER."'"DIAGONAL & ILLEGAL MOVES ARE"'"REJECTED. PRE"
5290P."SS ANY KEY TO START THE GAME.";LINK RR0;G.40
```

Square Solitaire (needs 5K text 1K graphics)

The object is of Square Solitaire to remove as many pieces as possible from the grid by jumping over them with another piece.

Pieces can only be moved horizontally or vertically and must jump over another piece and land in an empty square. Illegal moves are prompted ILEGAL and are ignored.

Pieces are moved by entering the co-ordinates to and from as explained at the start of the program. If key **Z** is pressed the last move played will be ignored and the pieces are re-instated in their previous positions. if key **L** is pressed the game is replayed and can be stopped at any point by pressing **S,** you can then continue to play from that point.

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...THE YEAR OF THE GAME LORDS.

fantasy SOFTWARE

THE PYRAMID is an arcade style game which has a very adventurous feel to it.

The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits.

The Pyramid is inhabited by a total of 60 wierd and exotic alien types, all of which are beautifully animated. You will meet a whole variety of demons, droids, insects and monsters, with a sprinkling of the more unusual, the extra-terrestrial tweezers, galactic strawberry, cosmic claw, mutant eye, plus a whole host of entities that defy rational description. You will no doubt invent your own nicknames.

You proceed to explore the Pyramid from top to bottom with the difficulty generally increasing with the depth of level. Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to discover the secret numbers of the pyramid. The puzzle won't take you a few days to solve, it will probably take you a few months.

This is "ZIGGY". He is shown above in his exploratory capsule and is a true representation of the on screen graphics. You have total control over his movements as you explore the many chambers of "THE PYRAMID".

FANTASY SOFTWARE is available from W.H.Smiths, John Menzies and Computers For All

Compatible with all leading joysticks.

THE PYRAMID

For 48K Spectrum

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SOFTWARE

CREEPERS

Made by: Virgin Games
Price: £5.95

Creepers is the strange sounding name of Virgin Games new game for the 8K expanded VIC-20.

Upon loading the first section of the program you are presented with instructions in colour! They explain that you are in control of the last fighter, providing the final defence of your subterranean cities energy supply.

On the screen your fighter is controlled by either the joystick or keyboard. It can face left and right but only move up and down. To the left the aliens power store is built up when they have enough you are, naturally enough, ''doomed to die''. To the right the aliens cling to the ceiling and descend to take your energy blocks which are situated to the bottom right. You must try to destroy them before they get the energy blocks or after when they ascend at twice their descending speed. On sheet one the aliens drop one by one and on sheet two they drop in bunches of two, etc. If the aliens manage to relieve you of all your bricks in a particular zone they mutate and attack you.

Not only do aliens attack your energy blocks but ''watchers'' may appear and ''watch'' you, then remove all blocks in a zone in one swoop.

The game requires good eye-hand coordination and speedy reflexes. In play it is colourful with reasonable sound effects with mainly user-defined graphics.

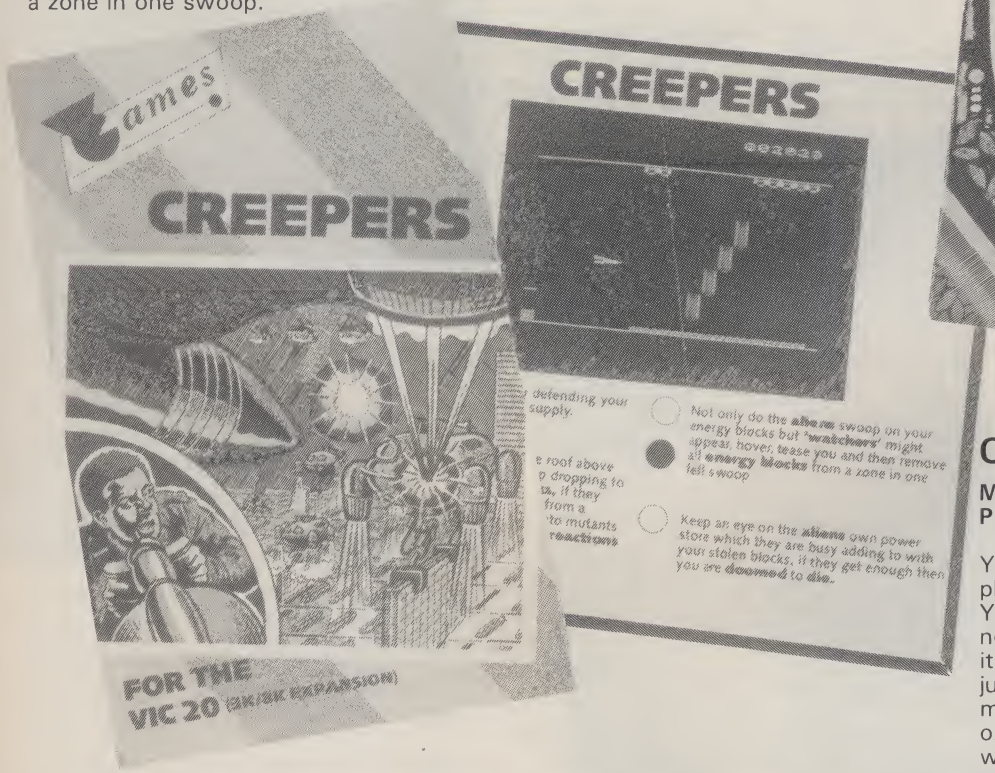
Two points which weren't so hot are:
1. The screen is not centered very well; and
2. Where does the title ''Creepers'' come into it?
Can anyone tell me?

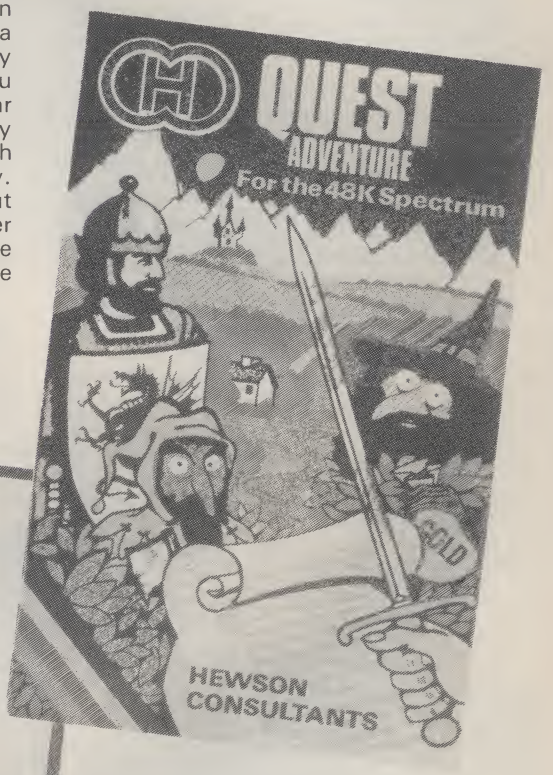
CRAWLER

Made by: Computer Rentals Ltd
Price: £5.00

You may be familiar with games guiding caterpillars around the Spectrum screen gobbling bugs (a useful attribute for a micro game) and avoiding deadly mushrooms. If you are, then you already know this game. The caterpillar is constantly on the move. You may turn him (or her?) anticlockwise with the 1 key and clockwise with the 0 key. These are well chosen controls but they're all you get. Your only other choice is the speed of the game, a range between 1 and 9. The faster speeds are almost impossible. At 9 the caterpillar seems to race off the screen before you've achance to press a key though a little practice makes it almost manageable.

I think this game will pall with extensive play — it lacks variety and visual attraction, though the programming and the display are perfectly competent. There is also a tactical drawback in play. If you keep pressing the same key, thus travelling in a perpetual square, sooner or later the bug wanders into your clutches. This is a boring way to play but reasonably effective and indicates the failure to consider how players will really play and what they actually want from a game.





QUEST ADVENTURE

Made by: Hewson Consultants
Price: £5.95

You can't do justice to a game as complex as this in three hundred words. Yes, it is a traditional adventure, but it is not just problem solving, and neither is it purely wandering through mazes, or just fighting monsters nor just wielding mighty spells. On first sight it appears one of those infinite games of 'fight and wander' which starts by choosing a

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character type (in this case wizard, cleric, rogue, fighter or simpleton) and ends with a message like ''you die of lack of constitution'' (whatever that means) when you've bitten off more than you can chew. Well, it is one of those games. However it is almost as complex as some (Fantasy Role Playing) games in its combat system, using a concept called 'combat adds' from these games to calculate quite complex fights. However it does not give the player much control over tactics or weapon so is still more limited than its tabletop ancestors.

But hack and slay is by no means the end of the story. In addition to having to defeat sundry malignant beings you must also solve a series of puzzles as in the other type of adventure which is so popular. Here you must find objects, carry them to the appropriate places and discover their uses. You might think a game which tries hard to be interesting and varied for FRP gamers will be pretty unoriginal in its puzzling. Wrong again! The puzzles are difficult, the mazes complex and the Hobbit-like graphics are very pleasant. True there are not many illustrations and they sometimes do not match the text (the ornate bridge has no decoration at all, for example) but even 48K runs out. Needless to say, I have not yet solved it (has any reviewer ever solved an adventure before he writes the review?) but I am greatly enjoying the attempt. A very satisfactory game. What we need now is an adventure which combines artificial intelligence and 3D moving graphics with this kind of complexity. That would be a game and a half! Anyone out there writing one?

MY NAME IS UNCLE GROUCHO, YOU WIN A FAT CIGAR

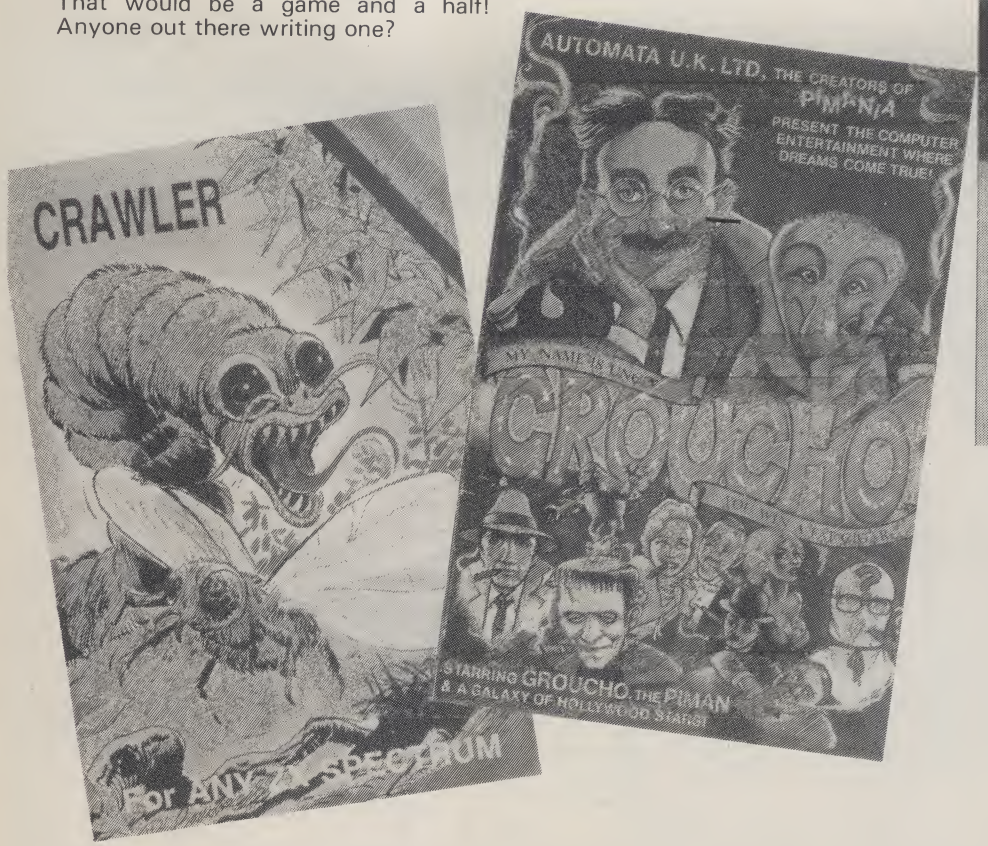
Made by: Automata UK Ltd
Price: £10

Automata have certainly NOT done it again. This latest release is not of the same standard as PIMANIA, although its graphics and musical content are similar.

The idea is to travel the streets of America, using cigars as currency, to obtain 22 revealing giving the identity of the Mystery Star. The program loaded first time, which is just as well because it was re-loaded with monotonous regularity. Whether or not I have a duff tape I cannot say, but if not then Automata are wasting their time and money with this one. Firstly when you run out of cigars the whole cassette needs re-loading just to restart, which means there is the initial screen to go through all over again. . . . A little long and drawn out. Then when I asked for HELP twice the machine was Newed for me. Finally another bug decided to NEW the machine when a simple reply was entered. . . . Oh well!!! Here we go again.

As to actually playing the game, I cannot give much comment, due to the fact that the majority of my time was taken up with re-loading. However, the areas I did visit were very good graphically and musically. The small amount of conversation I did have responded well and seemed bug free.

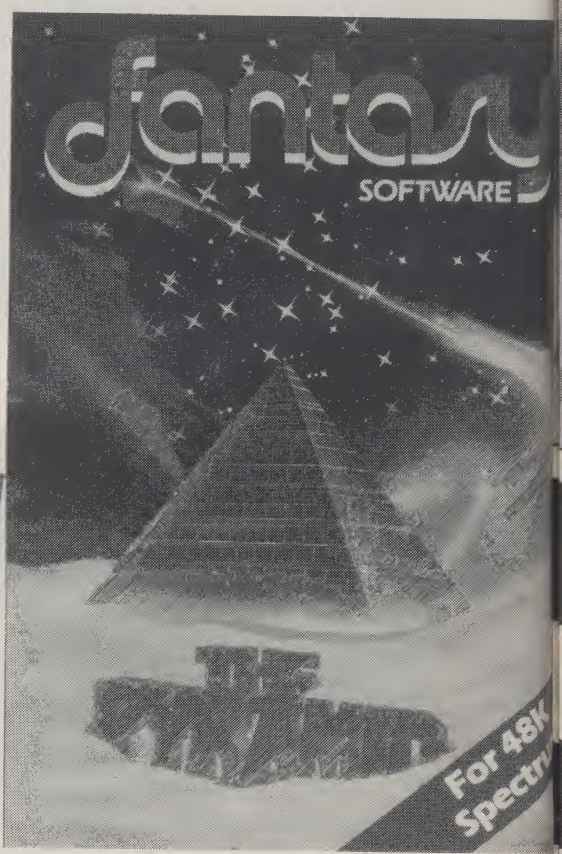
Hopefully I have been unfortunate enough to receive a defective cassette because I expected great things from Automata again and this program does not meet those standards.



THE PYRAMID

Made by: Fantasy Software
Price £5.95

A game that is massive in concept, consisting of a Pyramid with a base of fifteen rooms, giving the whole Pyramid a total of 120 rooms. The idea is to guide ZIGGY (yourself) down through the Pyramid from room to room and head for the central chamber on the base level. This is accomplished by use of crystals which neutralise the force fields protecting each room. However, the crystals can only be used when on their lowest power which also makes



them vulnerable to attack. Each room has its own occupants, whom you must destroy from your small capsule using your disintegrator. Fortunately you are protected by a force field of your own which can absorb any aliens you bump into. Unfortunately, this reduces your field strength and destroys you when it runs out altogether. As if that isn't enough, there is also a number puzzle to solve en route and failure to do so will mean you cannot enter the central chamber.

The screen displays of the rooms are excellent with plenty of colour and adequate sound. The aliens are also very

colourful and a delight to watch.

Each chamber contains four pieces of information, 1. Shield Points remaining. 2. Number of aliens to be destroyed before the next crystal appears. 3. Chamber Number and 4. Time remaining. Between chambers the current score and high scores are given as well as a diagramatic view of your position. There are seven options for play, four using a Joystick and three using the keyboard.

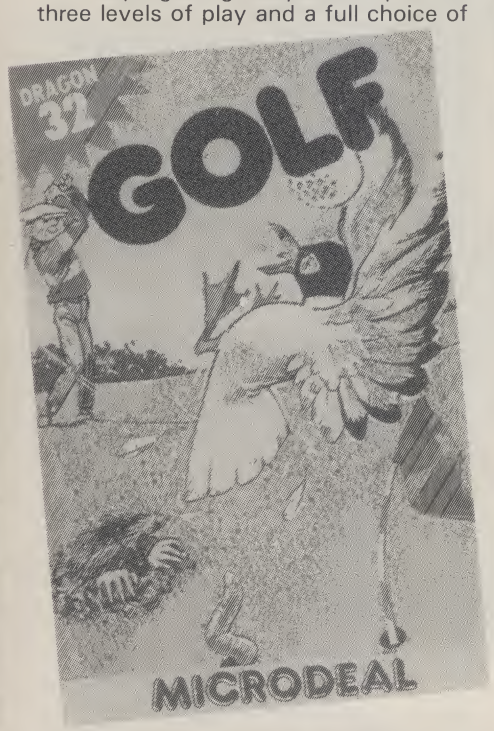
Overall, a good release from Fantasy Software, at a reasonable price.

GOLF

Made by: Microdeal
Price: £8.00

Being a frustrated Golfer this golf program from Microdeal made me think that I could solve all my problems and save myself time — whoever heard of completing nine holes in ten minutes?

The program gives you the option of three levels of play and a full choice of



clubs. The fairway is displayed in hi-res graphics and you are given the various parameters, distance to the hole, par etc. The various hazards, water, bunkers and rough are displayed. You direct the ball using the clock face method and there is a built in hook and slice element. For the non-golfer this means that the computer expects you to miss-hit the ball and therefore it doesn't always go in the direction you expect, just like the real thing.

I found the number of miss-hits to be higher than I think the average golfer expects — or at least admits to! After playing a few rounds I had convinced myself that the sooner I got back on the golf course the better — I was playing worse on the machine than for real!

Harmless fun for those winter days or nights when you fancy a quick round — but frustrating because there are only eighteen holes — they forgot the nineteenth!

STAR QUALITY GAME OF THE MONTH

QUINTIC WARRIOR

Made By: Quicksilva
Price: £7.95

Quintic Warrior is one of four new games brought out by major software producer Quicksilva. And if this game is anything to go by Quicksilva may yet again make a quick kill in the software market.

You are a Quintic Warrior in the seemingly impermeable Dome City patrolling, when your computerised defence system rather unfortunately decides to backfire — just as some deadly aliens, the Zoranian Mutants, are arriving in large numbers. So, not only are you fighting the Zoranian Mutants with their deadly 'Zead Rammer' but your own highly sophisticated main defence as well. However, you have one advantage — the Quintic Factor — a combination of many qualities needed to become a Quintic Warrior. So with these attributes you set out to save your people and the Dome City.

This game is played with Joystick only and if pulled back will select up to 21 playing levels. You start with three lives and one is added after each level is completed (no mean feat!). If you are hit by a Zed Bolt or a Lazer Snare you lose one life, if you get caught by a Mutant you sustain damage of 1/10 of a life and if a Mutant reaches the top of the screen the game is over.

Quicksilva describe this an an 'Arcade mega game' which is not far from the truth. It has the ingredients of originality, addictivity, and playability which should make it a hit, deservedly.

BEWITCHED

Made by: Imagine Software
Price: £5.50

Locked doors, coloured keys, and a host of ghosts are the ingredients in this maze masterpiece. At the top of the screen are four keys in different colours through which you must pass. Moving through a key changes your 'man' to the same colour as the key, and you are then able to unlock all the doors of similar hue on the screen. Unlocking a door reveals either a hole or a wall in the maze. As you make your way through the maze an increasing number of ghosts arrive to hamper your progress.

The object of the game is to unlock all the different coloured doors to make your escape. However, just when you think that you have reached the end, the screen scrolls down to reveal yet another maze. To change the colour, you have to go all the way back to the top and start again.

I do not recommend attempting this game with a monochrome TV. A lot of time can be wasted in trying to decide which two shades of grey are the same!

The game offers a choice of joystick

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or keyboard control: in the latter case and are used for left and right, and P and A are used for up and down. A better arrangement could have been chosen.

The presentation on screen is clear and sound and sound well incorporated. All in all this game has good, challenging entertainment value.

ROBOPODS

Made by: Virgin Games
Price: £5.95

This is another of those 'bash the aliens before they getcha' which seems to go down well with kids. I tried it out on a group of 10-year-olds at a local school and it went down a treat, but that may have something to do with the process involved. Some quite gruesome Robopods are going to try and take over the Earth and of course you have to do something about it — namely to de-activate them, avoiding mines as you do so. The method of doing this involves treking round the screen, visiting each Robopod in turn (they are numbered and you MUST de-activate them in the right sequence).

Excellent use is made of graphics manipulation and the game is actually quite educational, because in your movement round the screen you must not cross your own footsteps — unless special mats appear enabling you to do so — and this requires the player to visualise moves some way ahead as well as find the best route. Dawdle and you are lost. The instructions are adequate and on-screen. Control is effected through either keyboard or joysticks, and there are 5 skill levels. **PB.**

SPACE SHUTTLE

Made by: Microdeal
Price: £8.00

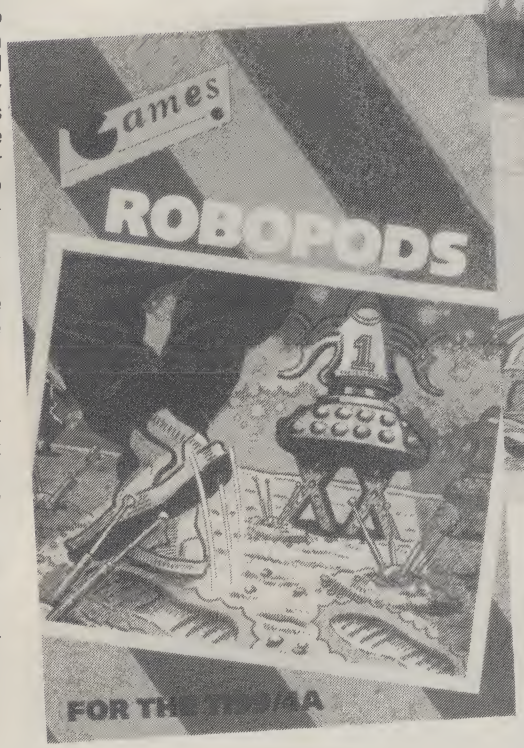
Space Shuttle from Microdeal is one of the best programs I have come across for the Dragon 32. It is impressive from the start with attractive styled packaging and a fully comprehensive 'flight manual'. Before embarking on the game a through read of the manual is essential.

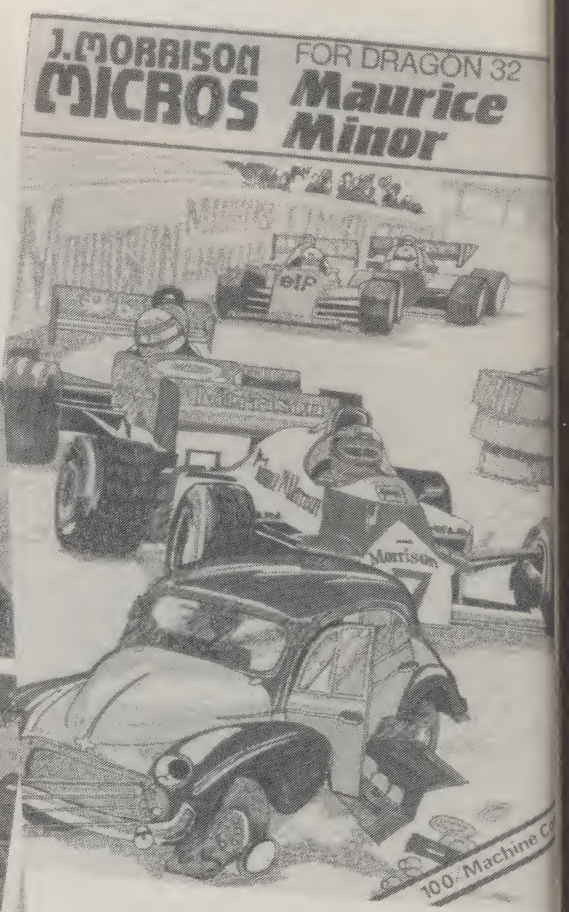
The purpose is to take the Space Shuttle into orbit on a predetermined flight path, dock it with a rogue satellite, rescue the satellite, load it into the Space Shuttle's cargo bay and then re-enter the earth's atmosphere and land the shuttle safely. And that's all!?!

It sounds easy, but first with the use of rocket jets you have to manoeuvre the shuttle into a very tight 'window' for orbit. You play against the clock and there's little or no room for error. Once in orbit you have to get them up along close to the satellite for the 'rescue' mission. If the clock beats you in those stages, don't worry because the automatic pilot takes over and gets you there — but of course you don't score any points. Before attempting to complete the mission you must accomplish the rescue stage, there's no time limit and you always succeed. Whatever happens you always finish up scoring some points! Next come the re-entry and landing procedures. These are the most difficult to achieve — and failure results in a crash. I've played it many times and each time when I think I'm getting the hang of it I've always been brought to earth with a big bump. But don't be dismayed. I asked a friend, a professional airline pilot to try, and he crashed it each time. But he did feel that given the usual six months conversion course that any pilot has to go through he would ultimately be successful!

The program is written by a NASA employee and follows as closely as possible the manoeuverings of the real thing.

The program makes use of the Dragon's high resolution graphics and joysticks are essential. As I said — a fascinating game.





MAURICE MINOR

Made by: J. Morrison Micros
Price: £6.95

Right from the moment this game first loads you know it's going to be good. An auto-run with a very nice display page. Then it asks your name, tough if you have more than six letters in your name, like me, as the computer only takes six letters. Then a choice of skill is chosen, not just 1-6 but ranging from Grannie, through Wizzkid, to Kingpin. Six levels in all. Sorry to waffle on but I do feel that the beginning of a program is just as important.

Well, the idea is to drive your stray 'maurice minor' round a race course, avoiding crash barriers, oil slicks, and of course the oncoming cars. To gain and loose speed the fire button is used. To steer; the joystick. One slight moan is that the screen scrolls from right to left, I would much prefer top to bottom. Also, on the subject of moans, I think ten miles is a little too far to go, especailly in a 'maurice minor'!

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FROGGY

By P Sidell

Start

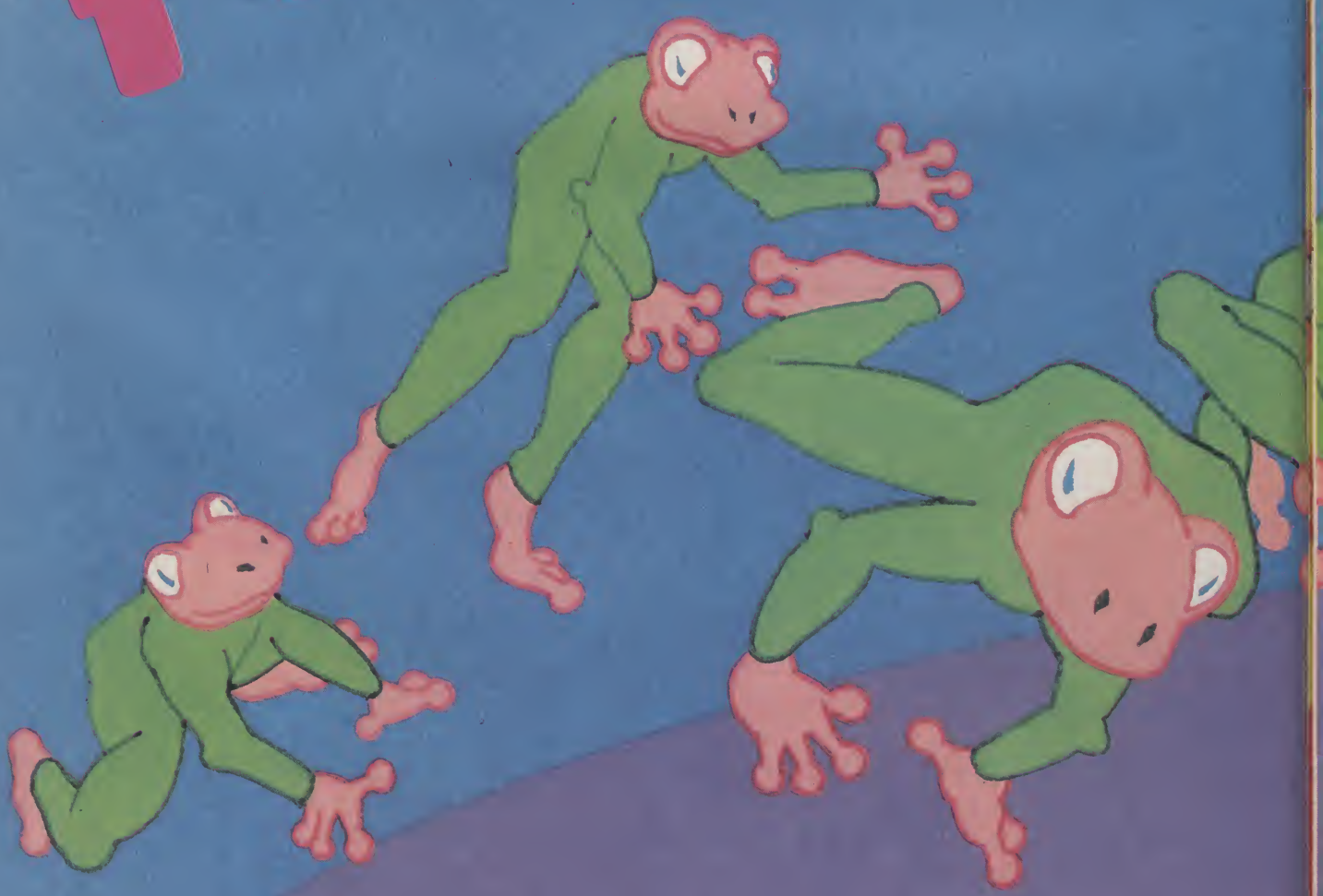
Oh damn, damn, damn! I've done it again, cut myself off from my home on the river bank, for what must be the thousandth time. I always seem to have to cross roads and rivers every time I want to get home. It really isn't fair, you know, really. Anyway, at least I don't have to cross the river. So much for the turtles, crocodiles and logs. Still there's an interesting change in the form of a railway line, complete with trains, which must be going about twice as quickly as the cars, and twice as fast as me. That should keep me on my toes. All this to get back to my cosy home . . .

This game is a variation on the ''Frogger'' theme, but with trains replacing the river. The trains are to be avoided, as are the cars, but move twice as quickly as frog can hop. Each frog which reaches home gains a score bonus, 3 frogs gain an extra bonus. A player is given 3 lives and 30 seconds to get frogs home. Continuous counts of time, lives and score are given at the top of the screen.

Doubling the speed of the trains was more difficult than it may sound. To do this I had to double the lengths of all 6 strings controlling the trains & cars, write the loop for 2 movements (44 charaacters) rather than 1 (22 characters) then half the speed of both cars & frog. On screen during the game will be the counts, the river bank and homes, 3 rows of trains, a border, then 3 rows of cars, and a white frog somewhere in there. Controls are given.

RUNdown

5	Gosubs to intro and clears memory for defined graphics.
10-15	Sets strings for cars & trains, sets hiscore to 0 and hiscorer to empty string.
18	Sets variables.
19	Clears screen & prints riverbank.
20	Sets screen colour, screen & volume.
21	Starts loop for movement and checks if frog is due to move.
22-25	Checks for key press & react accordingly.
26	Changes character used for frog, pokes white frog on screen.
32-37	Changes text to multicolour & prints strings controlling cars and trains in position reached according to PP the main loop variable.
38	Pokes the multicolour auxilary to black, as explained in issue 1 of PCT.
39	Prints count & border.



40-44	Check if the frog has been hit: if not jump to 50.
46	If frog has been bit jump to 61.
50	Checks time delay.
51	Continues loop, restarting if necessary.
52	Bleep for moving upwards.
54	Bleep for moving downwards.
59	If frog is home jump to 65.
60	Subtract 9 from score: frog has jumped to row 9 but hit the bank, so does not gain any score.
61	"Splat" sound, add 1 to lives lost, and jump to 70 if 3 lives lost.
63	restarts frog: resets variables, repositions frog, starts time and jumps to checks.
65	Add 10 to score and bleeps for getting frog home.
66	Add 1 to frogs home, jump if 3 home.
67	Restarts frog as in 63.
70-74	GAME OVER: ask player if he wants another go.
75-77	If Y is pressed, restart game. If N is pressed, end. Otherwise, continue checking.
80	Noise for 3 frogs home.
84	Resets variables, increments score, and resets top row of trains of 6 frogs have reached home.
85	Reset top row of cars if 12 frogs have reached home.
86	Goto game start.
900-904	Data for defined graphics.
950	Display titles.
951-961	Display explanation & controls.
990	Define graphics.
992	Check for a key pressed.
993	Jump to start of program.

Variables Used

Strings	
A$-F$	Strings for trains & cars.
H$	Hiscorer.
C$	Home then several cursor downs.
T$	Used for get statements.
Numeric	
C	30720 i.e. the difference between the screen & colour addresses.
F	0 or 1: character currently used for the frog.
FH	No. of frogs home.
HS	Hiscore.
I,U,W	Loop variables.
J	Adds 5 each time 3 frogs reach home.
L	Lives lost.
PI	Keyboard peek, value for key pressed.
P	½PP, used for the car movement lines 35-37.
PP	Main loop variable.
Q	Position of frog.
R	Row of frog.
S	Score.
Z	Control determining whether or not frog shall move.

Conversion Clues

As has been mentioned, the movement of trains and cars was achieved by rotating the strings, using LEFT$ and RIGHT$. On some machines this will need to be replaced by (TO X) and (ZTO). The VIC's inbuilt clock, TI$, is used which may not be compatible with some machines and so a count will have to be introduced in its place.

To produce the cars, the VIC's multicolour ability was used. POKEing 646 changes the text colour, a number between eight and 15 giving multicolour text. Other POKEs used were:

Line 5	Clears top of RAM.
Line 20	36879,93 changes screen to total green. 36869,255 changes screen to user-defined mode. 36878,15 sets volume to maximum.

PEEK(197) reads the keyboard, and can be replaced by INKEY$ or GET$.

Lines	
52-54	Bleeps.
Line 61	Splat.

POKES between 36874 and 36876 control the sounds.

Line 70 POKE 36869,240 sets the screen back to text mode.

Line 990 reads characters into RAM then replaces some with user-defined characters.

Line 992 is a more efficient method of waiting for a key to be pressed.

Q is a position on the screen, starting at 7680, then in 23 rows of 22 up to 8185. The colours start at 38400, hence C = 30720 (38400-7680).

FROGGY

```
5 GOSUB950:POKE52,28:POKE56,28
10 A$="GGDEEFGGGGGDEEFGGGDEFG":A$=A$+A$:HS=0:H$=""
11 B$="GGGGDEEFGGGGGGDEEEFGGG":B$=B$+B$:C$="DEEEFGGGGGGDEFGGDEFGGG":C$=C$+C$
12 O$="                              ":F$="  BC  BC  BC  BC  BC  ":F$=F$+F$:S=0
13 D$="  BC   BC  BC BC   BC ":D$=D$+D$:E$=" BC BC    BC   BC   BC":E$=E$+E$
18 F=0:Q=8130:R=0:C=30720:TI$="000000":PRINT"   EEEE EEEEEE EEEEE EEEE"
20 POKE36879,93:POKE36869,255:POKE36878,15
21 FORPP=0TO43:Z=1-Z:IFZ=0THEN26
22 P1=PEEK(197):IFP1=51THENPOKEQ,32:GOSUB52:Q=Q-44:R=R+1:S=S+R:IFR=9THEN59
23 IFP1=43THENPOKEQ,32:Q=Q-1:IFQ-7680-INT((Q-7680)/22)*22<1THENQ=Q+1
24 IFP1=20THENPOKEQ,32:Q=Q+1:IFQ-7680-INT((Q-7680)/22)*22>20THENQ=Q-1
25 IFP1=28THENPOKEQ,32:GOSUB54:Q=Q+44:R=R-1:S=S-R-1:IFR<0THENQ=Q-44:R=0
26 F=1-F:POKEQ,F:POKEQ+C,1
32 POKE646,15:PRINT"      "LEFT$(RIGHT$(A$,PP)+LEFT$(A$,44-PP),22)
33 PRINTLEFT$(O$,7)LEFT$(RIGHT$(B$,44-PP)+LEFT$(B$,PP),22)
34 PRINTLEFT$(O$,9)LEFT$(RIGHT$(C$,PP)+LEFT$(C$,43-PP),22)
35 P=INT(PP/2):POKE646,9:PRINTLEFT$(O$,13)RIGHT$(D$,P)LEFT$(D$,22-P)
36 POKE646,10:PRINTLEFT$(O$,15)RIGHT$(E$,22-P)LEFT$(E$,P)
37 POKE646,12:PRINTLEFT$(O$,17)RIGHT$(F$,P)LEFT$(F$,22-P)
38 POKE36878,PEEK(36878)AND15:POKE36878,PEEK(36878)OR0
39 PRINT"  SCORE"S,"TIME"RIGHT$(TI$,2),"LIVES"3-L;"          EEEEEEEEEEEEEEE
EEEEEEE"
40 IFR>1ANDR<5ANDPEEK(Q)=32THEN50
42 IFR>5ANDR<9ANDPEEK(Q)=7THEN50
44 IFR=5ORR<2THEN50
46 GOTO61
50 IFTI$>"000029"THEN61
51 NEXT:GOTO21
52 POKE36876,222:FORW=0TO99:NEXT:POKE36876,0:RETURN
54 POKE36875,160:FORW=0TO99:NEXT:POKE36875,0:RETURN
59 IFPEEK(Q)=32THEN65
60 S=S-9
61 FORI=0TO80STEP8:POKE36874,129+I:NEXT:POKE36874,0:L=L+1:IFL>2THEN70
63 TI$="000000":Q=8130:F=0:R=0:GOTO22
65 S=S+10:POKEQ,1:POKEQ+C,1:FORI=0TO80STEP.2:POKE36876,170+I:NEXT:POKE36876,0
66 FH=FH+1:IFFH>2THEN80
67 TI$="000000":R=0:F=0:Q=8130:GOTO22
70 POKE36869,240:PRINT"       GAME  OVER       "
71 PRINT"  YOU SCORED "S
72 IFS>HSTHENPRINT"  YOU HAVE THE HISCORE!":INPUT"  YOUR NAME";H$:HS=S
73 PRINT"  THE HISCORE IS"HS,"  BY "H$
74 PRINT" ANOTHER GAME? (Y/N)":POKE198,0
75 GETT$:IFT$="Y"THENS=0:J=0:FH=0:PP=0:L=0:GOTO18
76 IFT$="N"THENPRINT"":POKE36879,27:POKE646,12:END
77 GOTO75
80 FORU=0TO3:FORI=0TO25:POKE36876,250-I*2:NEXT:FORI=1TO25:POKE36876,200+I*2:NEXT
I,U
84 POKE36876,0:FH=0:Z=1-Z:S=S+21:J=J+5:IFJ=10THENA$="GGDEEEEEEFGGGGGGDEEEEF":A$=
A$+A$
85 IFJ=20THEND$="BC  BC  BC BC BC  BC  ":D$=D$+D$
86 GOTO18
900 DATA66,153,189,126,60,126,153,129,129,153,189,126,60,126,153,66,,55,170,170,
170,170
902 DATA55,,48,168,168,168,168,168,168,48,,7,255,7,7,255,7,,255,255,255,255,255,
255,255
904 DATA255,,224,255,224,224,255,224,,,,255,,,255,,
950 POKE36879,121:PRINT"  FROG          ",,"  (C) P SIDELL"
951 PRINT"  YOU ARE A FROG AND    WISH TO GET HOME"
960 PRINT" AVOID THE CARS &      TRAINS OR LOSE A LIFE"
961 PRINT"     U  H-O-J  N",,,,"  PLEASE WAIT":FORI=0TO511
990 POKE7168+I,PEEK(32768+I):NEXT:FORI=0TO63:READJ:POKE7168+I,J:NEXT:PRINT"  HI
T A KEY"
992 POKE198,0:WAIT198,1:POKE198,0
993 RETURN
```

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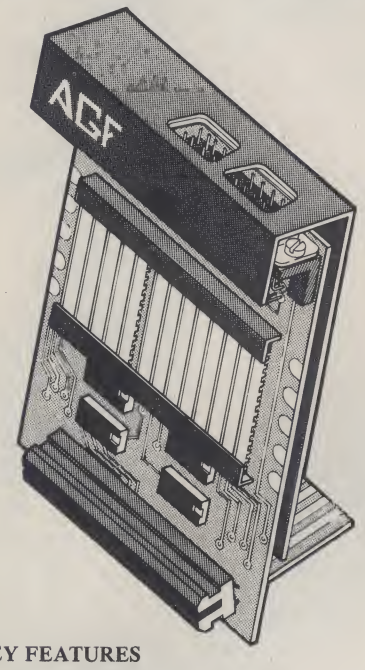

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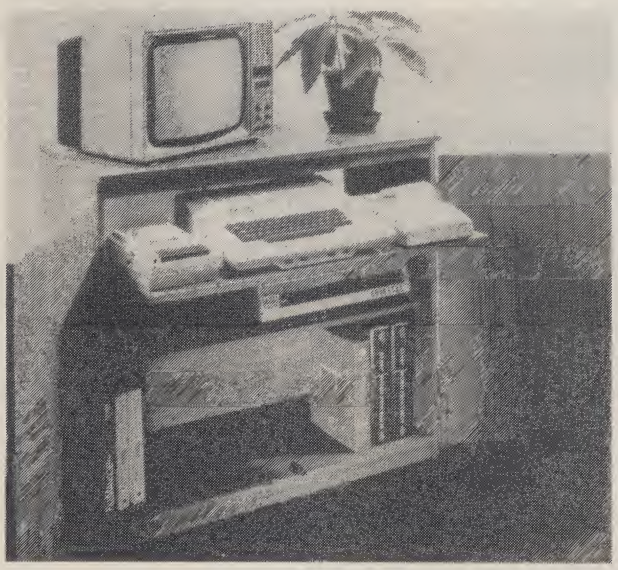

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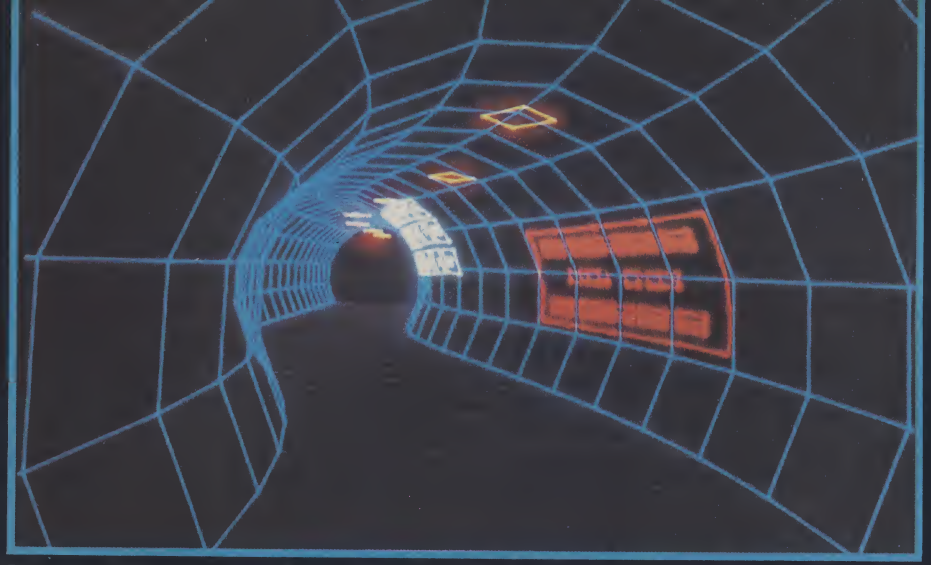


Simon Rockman found out all about computer animation at a recent London exhibition. And, who knows, maybe you'll be able to use similar graphics to those pictured in the not too distant future.

Todays home computers are capable of producing displays which not long ago would have required hardware costing many thousands of pounds. By looking at current state-of-the-art (up-to-date) technology we can see what might happen with domestic computers in the future.

High resolution graphics are very expensive in terms of memory and processing power but with advances in chip technology taking place so quickly the kind of graphics which are now used to produce such stunning effects as television's Channel 4 logo may soon be with the home user. However, to use these super powerful tools computer owners will have to learn the tricks of the trade. The data structures required by graphics are all based on heavy mathematics and even devising the graphics to form a simple twisting cube is playing with maths. In the same way that you don't need to know assembler to write a BASIC program, tools will be developed to make life easier. But a knowledge of what the computer finds easy and what is difficult, in other words what takes time and what it can do quickly, will make graphics programming more elegant.

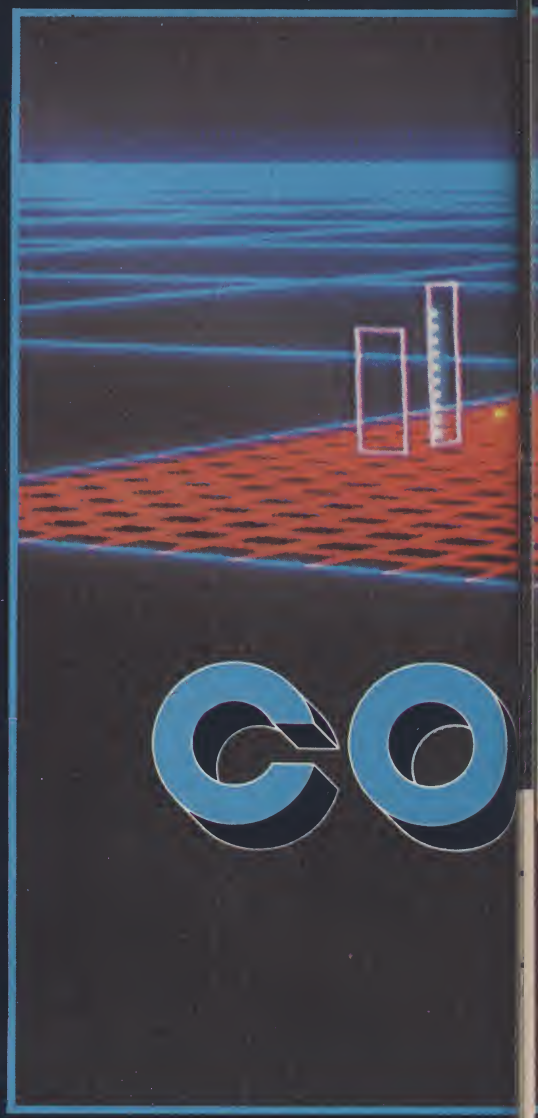
Making Pretty Pictures

One quite common trick is called anti-aliasing. This relys on shading to produce a smooth edge. Even on systems with quite high resolution you get a jagged or 'staircase' effect when lines are not parallel or at 45 degrees to the X or Y axis. The higher the contrast between the line, which may be the edge of a shape or a outline, and the background the worse it looks. This can be subdued if between a white edge and a black background a medium grey line is inserted, then between the medium grey line and the black line a dark grey line is inserted and between the medium grey line and the white edge a light grey line is inserted and so one.

With about 16 levels of intensity the edge does not look too thick on a large enough display and gives a smooth looking effect. Character sets with this done on them have been tried and are much easier and less tireing to read. This technique is frowned upon by the really big boys of computer graphics who argue that you should have high enough resolution not to have to cheat in this way these really large firms use supermini computers and mainframe computers. MAGI, who along with a firm called Triple I produced the film TRON for Walt Disney, use a Cray 1 which is one of the most powerful computers in the world. As do the New York Institute of Technology who are one of the leaders in developing new avenues within the field of computer graphics.

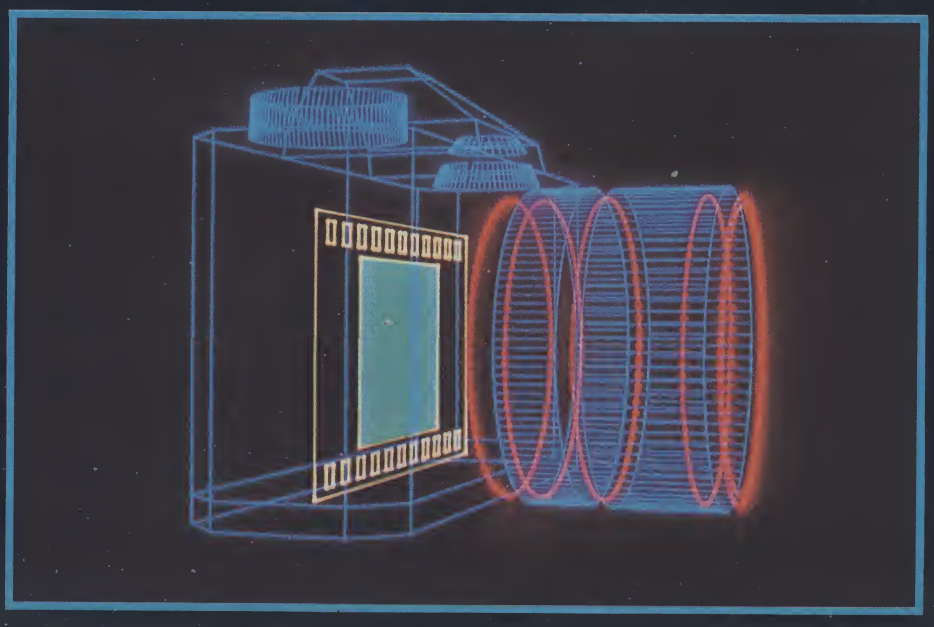
Bringing Computer Graphics To The Public

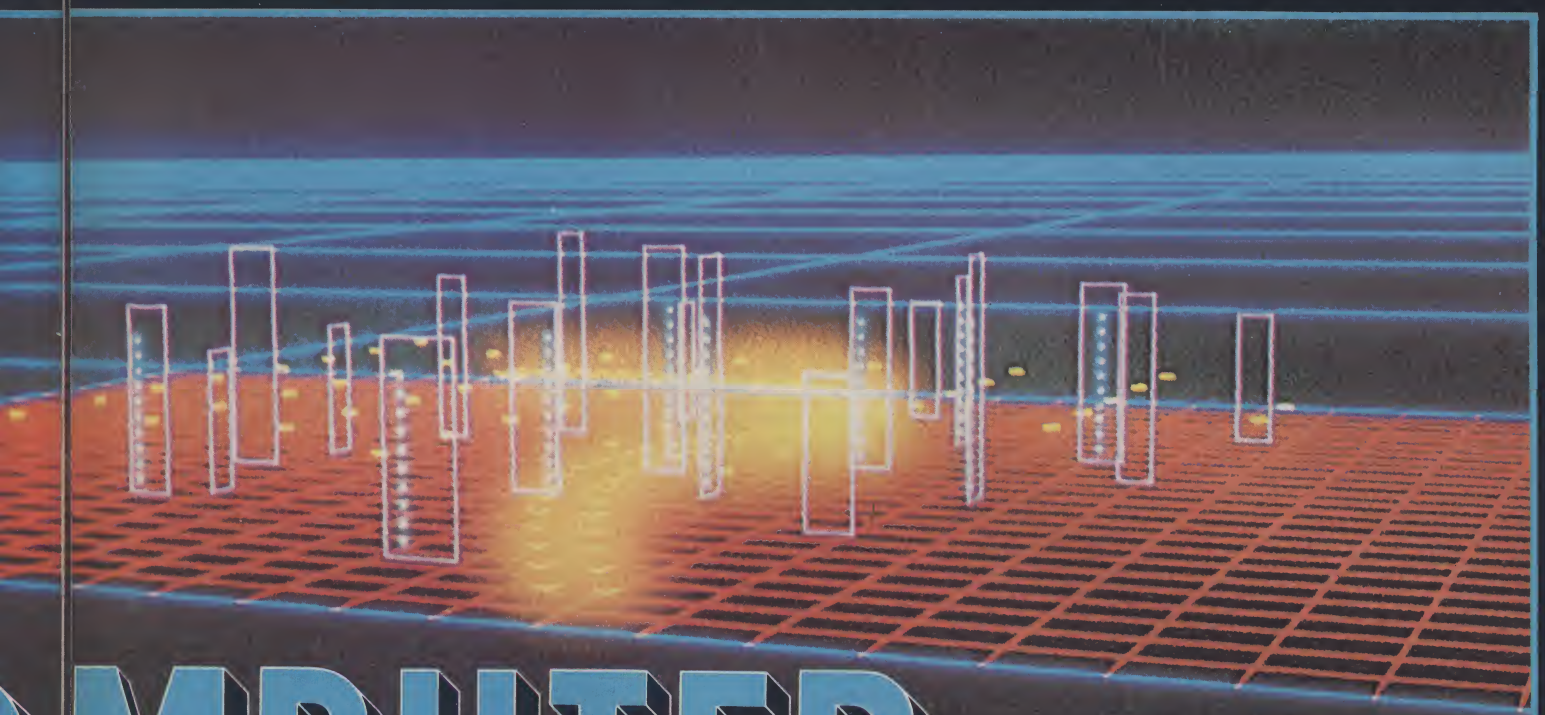
However, time on these large computers, which cost from about £2 million upwards, is very expensive and so beyond the budget of many of the people who would like to use them. It is the advertising agencies that we have to thank for a lot of the development in the use of computers to generate pictures for print and television. These agencies only have a limited amount of time in which to make an impact so the cost of a second of time is less important to them than it is to a television producer. As a result the best animation can be seen advertising tyres, toothbrushes and vacuum cleaners!



The annual showcase for computer graphics is the Computer Animation Film Festival. This is organised by exhibition firm Online who do a lot of computer conferences and the Festival this year was compared by Barry Norman. This show was wonderful! All the exhibitors were there to show off their displays and the resulting quality of the films was stunning. Hopefully it was a taste of things to come.

There was a totally computer

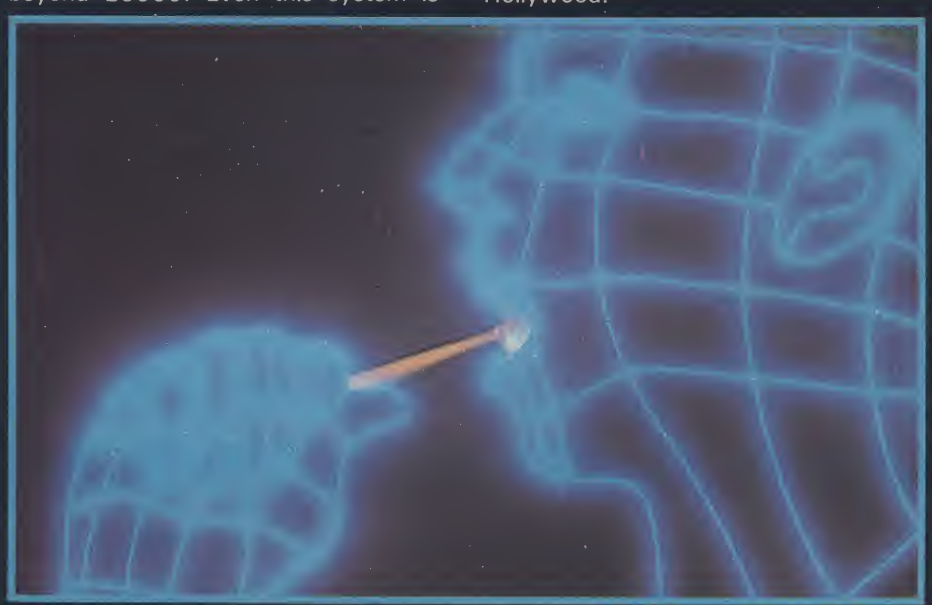




MPUTER ANIMATION

generated television programme (sorry program, it was from America), introduced by two characters called ''Dotmatrix'' and ''Userfriendly'' who made quips at one another and likes their real life compatriots. Also shown was a clip of some ant-like robots using machinery to build a dome. This was done with some superb animation and cute characterization. Also shown were excerpts from the animated TV series ''Terrahawks'', the film ''Return of the Jedi'' and title sequences to various television programmes.

The room for expansion into television to produce Tron-type programmes is enormous. As micros get more and more powerful perhaps we will see computer animation competitions along the lines of current film making competitions but with entrants submitting a disc instead of a film. What will be needed is a good selection of Computer Aided Design (CAD) software. The BBC Micro already has some in the form of Quicksilva's 'Designer' program and Acorns implementation of the Robocom 'Bitstick' looks spectacular. However, for animation it will be necessary to have some very clever software with fast fill routines, inbetweening to fill in frames for you and perhaps 3D manipulation. With this you could enter into the computer six views of, say, a telephone and the computer could do all the work of drawing it tumbling towards you. Nothing like this yet exists on micros, the nearest thing to it is IO Research's PLUTO system. This is a purely graphics system and the keyboard, screen and computer are extras starting at £500 going up to beyond £5000. Even this system is slow in animation terms. Big systems have many megabytes of RAM resolution beyond 1024 by 1024 and palettes of something like 16.7 million colours and price tags with at least four zeros on the end, so it may be some time before you get home, sit down at your 32 bit micro and start to rival Hollywood!



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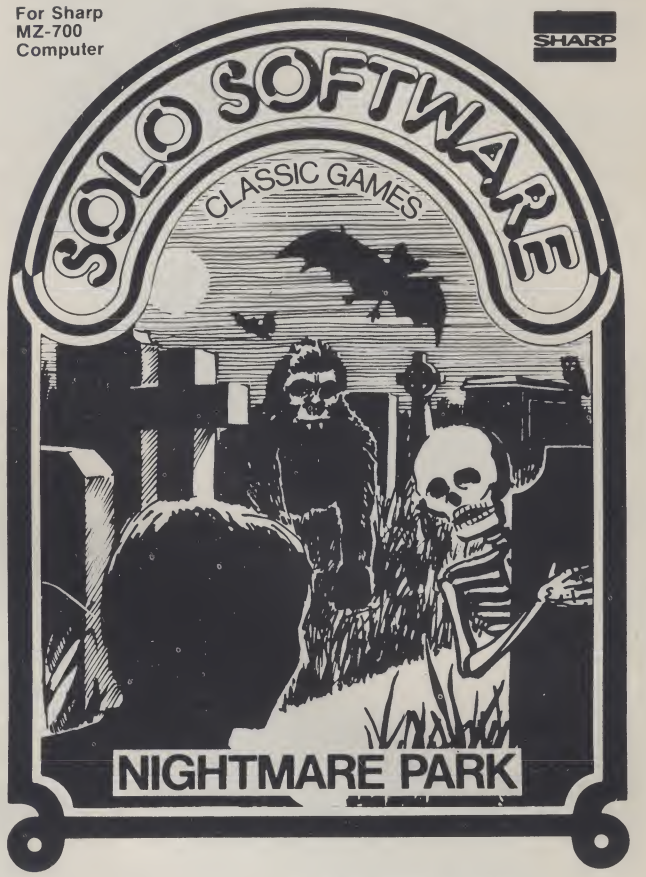

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CRAZEE CONG

Runs on Sharp MZ80A

By Andrew Comley

The game is based on a popular video game. The objective is to remove all the rivets in KONGS scaffold structure. However, he has in his employment several fireballs whose touch is lethal. Another hazard is, if you reach the fourth level several of the squares that you can jump on flash on and off.

To help in your mammoth task are two lifts adjoining levels 3 and 4 and the possible formation of two extension ladders from levels 1 to 2.

On screen will be a layered scaffold structure with ladders adjoining the plugs appear as inverse "H" signs. Lifts are based on a criss-crossed squared: it operates just by stepping on it. Your man is a small character man and the fireballs are white faces. It is possible to jump over the fireballs but it is extremely dangerous.

Variables Used

a1	: number of men.
a2	: bonus.
a3	: number of plugs removed.
a4	: level of play.
a5	: score.
b1-b6	: locations of fireballs.
b7	: top left corner.
j	: location of man.
c1	: display code for plug.
c2	: display code for fireball (white face).
c3	: display code for a space.
c4	: display code for a little man.
c5	: display code for a white square.
c6	: display code for a ladder section.
p1	: (41) position right lower diagonal of character (depending on sign).
p2	: (40) position directly below character (depending on sign).
p3	: (39) position left lower diagonal of character (depending on sign).
p4	: (80) position two squares above character (depending on sign).

CRAZEE CONG
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CRAZEE CONG

Conversion clues

The program is written for a Sharp MZ 80-A and so conversion to the Sharp MZ 80-K is relatively simple. The only alterations being character codes and the command ''CURSOR X,Y : PRINT'' which is analogous with ''PRINT @ X,Y;''.

For other machines conversion should not cause too many difficulties. Locations start at 53248. It is a 40 column display. The list of variables will show the display codes for characters but no high-resolution graphics are used.

The noise routines are: a FOR NEXT loop containing ''POKE 4514,X : POKE 4513,X : USR (68) : NEXT : USR (71)''. Apart from these easily converted parts the rest of the program consists of fairly standard BASIC. If the program is scanned it will be seen that many, generally unimportant parts can be excluded from the program without causing irrevocable damage for example the set/reset routine if your machine cannot handle these commands.

Rundown

Line	Action
10-65	Initialises variables.
91-93	Flashing squares: POKE character or space on rnd command.
100-250	Movement of fireballs: addition to rnd No. to location.
300-340	Checks to see if you have walked over a rivet or a bonus.
350-370	Checks to see if you have walked over a rivet or a bonus.
380	Checks No. of plugs removed if greater then 9 level increases by one.
400-490	Looks to see if part of a ladder is in one square vicinity and replaces missing parts in that region.
500-530	Routine for jumping three places to right.
540-590	Checks to see if you have jumped over a plug if so, score increases.
600-630	Routine for jumping three places to left.
640-690	As lines 540-590.
800-970	Sets up screen and plugs.
1000-1100	Movement of man and GOSUB routines as mentioned.
1100-1120	As lines 400-490.
1140	Checks if you fall down hole.
1150-1165	Depending on level moves to routine for moving fireballs and/or flashing squares.
1180	Bonus is depleated every time loop is completed.
1190-1197	Upper screen display ; score , bonus etc.
1200	If bonus is zero then lose one life.
1210-1240	Check to see if touching a fireball if so DEATH.
1250-1310	Routine for falling down hole.
1400-1420	Loss of life routine and end of game.
1655	Clear sheet routine i.e. level increases bonus adds onto score.
300-3195	Sets/resets intro. picture.
4000-4230	General rules and tips including ambidextrous hand control.
4500-4560	Explosion on falling through hole routine.
5000-5500	Death by fireball.
6000-6180	END OF GAME.
7000-9030	Routine elevating man on steps i.e. lift.

```
 1 REM ┌──────────────┐
 2 REM │Crazy Kong    │
 3 REM │by Andrew Comley│
 4 REM │1983          │
 5 REM └──────────────┘
 6 PRINT"■":GOSUB3000:HS=1000:DIM R(7),B(7)
 10 P1=41:P2=40:P3=39:P4=81
 11 A1=3:A2=5000:A3=0:A4=1:A5=0
 20 C1=197:C2=206:C3=0:C4=202:C5=67:C6=163:A3=0
 65 B(1)=53419:B(2)=53439:B(3)=53698:B(4)=53720:B(5)=53978:B(6)=53994:B(7)=53248
 70 J=54107
 72 PRINT"■":TEMPO1
 73 PRINT"■■■■■■■■■■■■■■■■■■"
 74 FORY=1TO4
 75 PRINT"  ◠          "
 76 PRINT"  ◡◡         "
 77 PRINT"  ••         "
 78 PRINT" (oo)        "
 79 PRINT" \◠/         "
 80 PRINT"  ◡          "
 81 NEXTY
 82 PRINT"■■■■■■■■■■■■■■■■■■■■■■HOW HIGH CAN YOU TRY?":MUSIC"+C+D+E+F+G+A-B"
 83 TEMPO4
 90 GOTO800
 91 R(7)=INT(RND(1)*5):P6=499:P7=779
 92 IFR(7)>2.5THENPOKEB(7)+P6,0:POKEB(7)+P7,C5
 93 IFR(7)<2.5THENPOKEB(7)+P6,C5:POKEB(7)+P7,0
 100 SR=F:FORF=1TO6
 150 POKEB(F)+R(F),C3
 165 READR(F):IFR(F)=0THENRESTORE:GOTO165
 170 POKEB(F)+R(F),C2
 180 IF(PEEK(B(F)+P2)=C5)+(PEEK(B(F)+P2)=C3)THENPOKEB(F),C3
 190 NEXT:F=SR
 250 RETURN
 260 DATA-3,4,1,4,-2,4,1,4,-1,4,1,4,1,4,1,0
 300 REM WALKING PLUG CHECKS
 310 IFPEEK(J+P1)=C1THENPOKEJ+P1,C3:GOSUB394:A3=A3+1:A5=A5+100
 311 IF(PEEK(J)=83)+(PEEK(J)=65)+(PEEK(J)=70)+(PEEK(J)=68)THENGOSUB  497
 312 IFPEEK(J+P2)=166THENGOSUB 8000
 320 GOSUB  380
 340 RETURN
 350 IFPEEK(J+P3)=C1THENPOKEJ+P3,C3:GOSUB  394:A3=A3+1:A5=A5+100
 351 IF(PEEK(J)=83)+(PEEK(J)=65)+(PEEK(J)=70)+(PEEK(J)=68)THENGOSUB  497
 360 GOSUB  380
 370 RETURN
 380 IF A3>9THEN  1580
 390 RETURN
 394 FORF=0TO2:POKE4514,F:POKE4513,F:USR(68):NEXT:USR(71):RETURN
 400 REM ** LADDER CHECKS **
 410 IFPEEK(J-P1)=C6THENPOKEJ-1,C6
 420 IFPEEK(J-P4)=C6THENPOKEJ-P1,C6:RETURN
 430 RETURN
 440 REM ** LADDER CHECKS **
 450 IFPEEK(J+P4)=C6THENPOKEJ+P1,C6
 460 RETURN
 470 IFPEEK(J-P3)=C6THENPOKEJ+1,C6
 480 IFPEEK(J-79)=C6THENPOKEJ-P3,C6
 490 RETURN
 492 FORF=255TO1STEP-50:POKE4514,1:POKE4513,F:USR(68):NEXT:USR(71):RETURN
 497 FORF=5TO1STEP-1:POKE4514,F:POKE4513,F:USR(68):NEXT:USR(71)
 498 A5=A5+INT(RND(1)*750):RETURN
 500 REM ** JUMP> **
 510 J=J-P3:POKEJ+P3,C3:POKEJ,C4:J=J+1:POKEJ-1,C3:GOSUB  410:POKEJ,C4
 520 J=J+P1:POKEJ-P1,C3:GOSUB  420:POKEJ,C4
 530 GOSUB492
 540 REM JUMPING PLUG CHECKS
 545 IFPEEK(J+P2)=C3THENGOSUB1250
 550 IFPEEK(J+36)=C1THENPOKEJ+36,C3:A3=A3+1:A5=A5+100:GOSUB394
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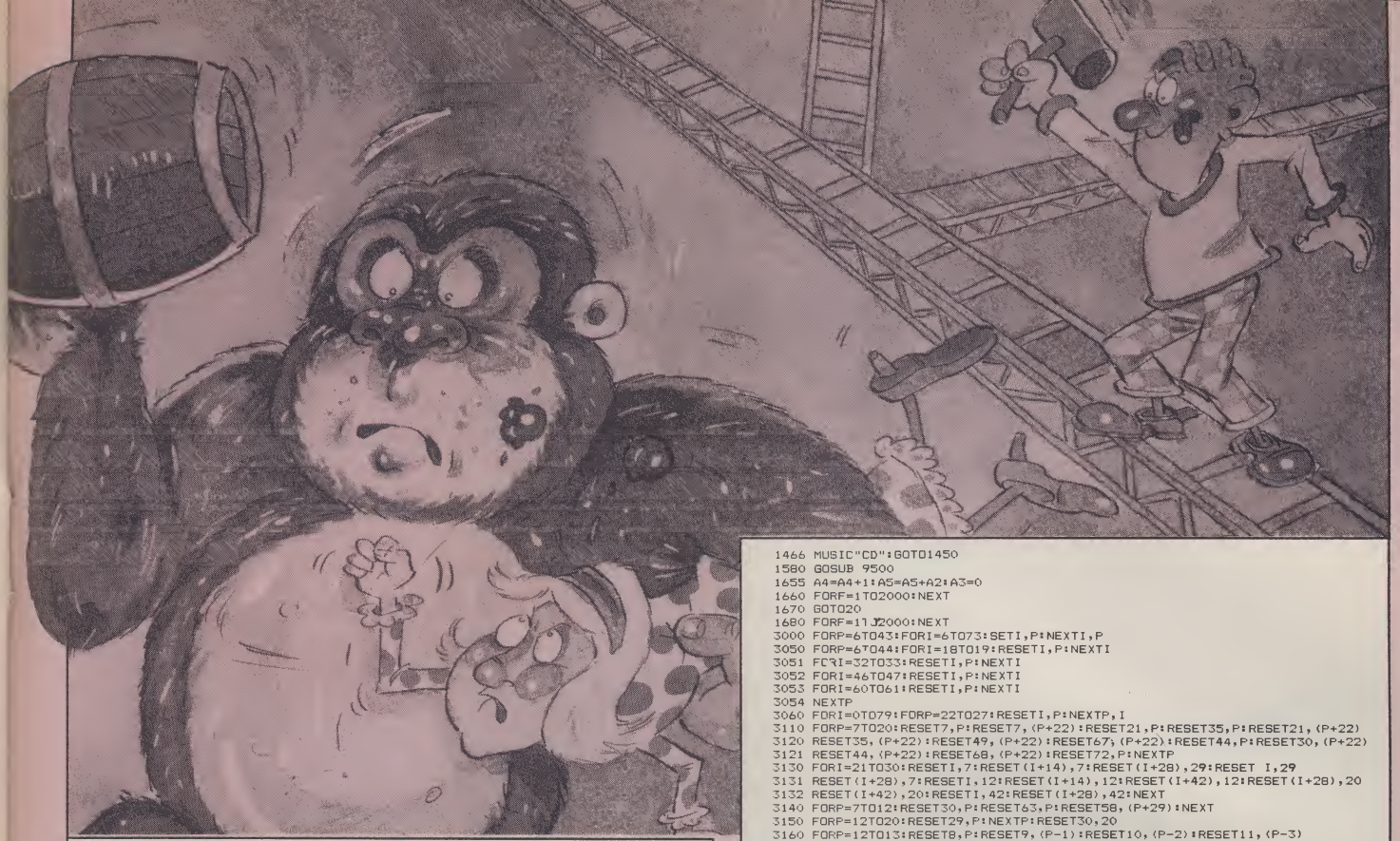

```
560 IFPEEK(J+37)=C1THENPOKEJ+37,C3:A3=A3+1:A5=A5+100:GOSUB394
570 IFPEEK(J+38)=C1THENPOKEJ+38,C3:A3=A3+1:A5=A5+100:GOSUB394
580 IFPEEK(J+P3)=C1THENPOKEJ+P3,C3:A3=A3+1:A5=A5+100:GOSUB394
590 RETURN
600 REM JUMP↑
610 J=J-P1 POKEJ+P1,C3:POKEJ,C4:J=J-1:POKEJ+1,C3:GOSUB  470:POKEJ,C4
620 J=J+P3:POKEJ-P3,C3:GOSUB  480:POKEJ,C4
630 GOSUB  492
640 REM JUMPING PLUG CHECKS
645 IFPEEK(J+P2)=C3THENGOSUB 1250
650 IFPEEK(J+40)=C1THENPOKEJ+40,C3:A3=A3+1:A5=A5+100:GOSUB  394
660 IFPEEK(J+43)=C1THENPOKEJ+43,C3:A3=A3+1:A5=A5+100:GOSUB  394
670 IFPEEK(J+42)=C1THENPOKEJ+42,C3:A3=A3+1:A5=A5+100:GOSUB  394
680 IFPEEK(J+P1)=C1THENPOKEJ+P1,C3:A3=A3+1:A5=A5+100:GOSUB  394
690 RETURN
800 REM ** SCENERY **
805 PRINT"■":PRINT:PRINT:PRINT
806 PRINT"     ♯"
810 PRINT"  ■▒▒▒▒▒▒ ▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒ ▒▒▒▒▒▒■"
815 PRINT"     ♯"
816 PRINT"  ♥ ♯                              ♠      ♯"
820 PRINT"  ■▒▒▒▒ ▒▒▒▒■  KRAZYKONG  ■▒▒▒▒ ▒▒▒▒■"
825 FORA=0TO1:PRINT"                                                ♯":NEXT
826 PRINT"                                                  ♯    "
830 PRINT"  ■▒▒▒▒▒▒▒ ▒▒▒▒▒■  ■  ■▒▒▒▒▒ ▒▒▒▒▒▒■"
835 PRINT
836 PRINT"      ♠      ♯                  ♯      ♣"
840 PRINT"     ■▒▒▒ ▒▒▒■  ■▒ □ ▒■  ■▒▒▒ ▒▒▒■"
845 FORA=0TO1:PRINT"                  ♯                  ♯    ":NEXT
846 PRINT"      ♯      ♯                  ♯      ♯    "
850 PRINT"  ■▒▒▒▒ ▒▒▒▒▒▒▒▒■  ■  ■▒▒▒▒▒▒▒ ▒▒▒▒■"
854 PRINT"      ♯                                  ♯    "
855 PRINT"      ♯                  ♠               ♯    "
860 PRINT"  ■▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒■"
960 POKEB(7)+210,C1:POKEB(7)+490,C1:POKEB(7)+609,C1
965 POKEB(7)+767,C1:POKEB(7)+327,C1
970 POKEB(7)+228,C1:POKEB(7)+508,C1:POKEB(7)+629,C1
975 POKEB(7)+791,C1:POKEB(7)+351,C1
990 POKEJ,C4:PRINT"■"
1000 REM ** MOVEMENT MAIN PROG **
1010 GETA$
1020 IF(A$="Z")+(A$="/")THENJ=J-1:GOSUB 7000:POKEJ+1,C3:GOSUB310:POKEJ,C4
1030 IF(A$="X")+(A$="?")THENJ=J+1:GOSUB 7000:POKEJ-1,C3:GOSUB350:POKEJ,C4
1040 REM ** CLIMBING **
1050 IFA$="L"THENIFPEEK(J-P2)=C6THENJ=J-P2:POKEJ+P2,C6:GOSUB  394:POKEJ,C4
1055 E1=PEEK(J+P2)
1060 IF(A$=",")*(E1=C6)THENJ=J+P2:POKEJ-P2,C6:GOSUB  394:POKEJ,C4
1070 REM ** JUMP **
1080 IF(A$="ж")+(A$="↑")THENGOSUB500
1085 REM ** PLUG CHECKS **
1090 IF(A$="z")+(A$="←")THENGOSUB600
1100 REM ** REPLACING LADDDER(WALK) **
1110 IF(PEEK(J-P1)=C6)+(PEEK(J+P3)=C6)THENPOKEJ-1,C6
1120 IF(PEEK(J-P3)=C6)+(PEEK(J+P1)=C6)THENPOKEJ+1,C6
1130 REM ** DEATH CHECK **
1140 IFE1=LTHENGOSUB 1250
1150 REM ** FIREBALLS MOVE **
1160 IFA4<5THENGOSUB  100
1165 IFA4>4THENGOSUB   91
1170 REM BONUS/SCORE
1180 A2=A2-10
1190 PRINT"■┌──────┬──────┬──────┬──────┐"
1192 PRINT"■■■│BONUS │SCORE │LEVEL │MEN  │"
1194 PRINT"■■■└──────┴──────┴──────┴──────┘"
1196 CURSOR6,1:PRINTA2:CURSOR17,1:PRINTA5
1197 CURSOR29,1:PRINTA4:CURSOR36,1:PRINTA1
1200 IFA2=0THENPOKEJ,C3:GOSUB  394:FORF=0TO3000:NEXT:GOTO 1400
1210 REM ** F/BALL KILL CHECK **
1220 IF(PEEK(J+1)=C2)+(PEEK(J-1)=C2)+(PEEK(J)=C2)THEN GOSUB5000:GOTO 1300
1230 IF(PEEK(J-P2)=C2)+(E1=C3)THENPOKEJ,C3:GOSUB5000:GOTO 1300
1240 GOTO 1010
1250 REM ** FALL/DEATH THROUGH HOLE **
1260 FORF=0TO100:POKE4514,1:POKE4513,F:USR(68):NEXT:USR(71)
1265 FORF=1TO20
1270 J=J+P2:POKEJ-P2,C3:POKEJ,205:IFPEEK(J+P2)<>C3THENPOKEJ,C3:GOSUB4500
1300 IFPEEK(J)=C3THENFORF1=0TO1500:NEXTF1:GOTO 1400
1310 FORF2=0TO20:NEXTF2:NEXTF
1400 REM CHECK & APPROP ACTION
1410 A1=A1-1
1415 IFA1>0THENA2=5000:GOTO20
1420 GOSUB 6000
1440 PRINT"■■■►►►►►►►►►ANOTHER GAME?  (Y/N)"
1450 GET G$
1460 IFG$="Y"THENPRINT"■":GOTO10
1465 IFG$="N"THENPRINT"■":END
```

```
1466 MUSIC"CD":GOTO1450
1580 GOSUB 9500
1655 A4=A4+1:A5=A5+A2:A3=0
1660 FORF=1TO2000:NEXT
1670 GOTO20
1680 FORF=1TO2000:NEXT
3000 FORP=6TO43:FORI=6TO73:SETI,P:NEXTI,P
3050 FORP=6TO44:FORI=18TO19:RESETI,P:NEXTI
3051 FORI=32TO33:RESETI,P:NEXTI
3052 FORI=46TO47:RESETI,P:NEXTI
3053 FORI=60TO61:RESETI,P:NEXTI
3054 NEXTP
3060 FORI=0TO79:FORP=22TO27:RESETI,P:NEXTP,I
3110 FORP=7TO20:RESET7,P:RESET7,(P+22):RESET21,P:RESET35,P:RESET21,(P+22)
3120 RESET35,(P+22):RESET49,(P+22):RESET67;(P+22):RESET44,P:RESET30,(P+22)
3121 RESET44,(P+22):RESET68,(P+22):RESET72,P:NEXTP
3130 FORI=21TO30:RESETI,7:RESET(I+14),7:RESET(I+28),29:RESET I,29
3131 RESET(I+28),7:RESETI,12:RESET(I+14),12:RESET(I+42),12:RESET(I+28),20
3132 RESET(I+42),20:RESETI,42:RESET(I+28),42:NEXT
3140 FORP=7TO12:RESET30,P:RESET63,P:RESET58,(P+29):NEXT
3150 FORP=12TO20:RESET29,P:NEXTP:RESET30,20
3160 FORP=12TO13:RESET8,P:RESET9,(P-1):RESET10,(P-2):RESET11,(P-3)
3161 RESET12,(P-4):RESET13,(P-5)
3162 RESET8,P:RESET9,(P+1):RESET10,(P+2):RESET11,(P+3)
3163 RESET12,(P+4):RESET13,(P+5):RESET14,(P+6):RESET15,(P+7)
3164 NEXT:RESET16,20:RESET14,7
3170 FORP=34TO35:RESET8,P:RESET9,(P-1):RESET10,(P-2):RESET11,(P-3)
3171 RESET12,(P-4):RESET13,(P-5)
3172 RESET8,P:RESET9,(P+1):RESET10,(P+2):RESET11,(P+3)
3173 RESET12,(P+4):RESET13,(P+5):RESET14,(P+6):RESET15,(P+7)
3174 NEXT:RESET16,42:RESET14,29
3180 FORP=31TO32
3182 RESET36,P:RESET37,(P+1):RESET38,(P+2):RESET39,(P+3)
3183 RESET40,(P+4):RESET41,(P+5):RESET42,(P+6):RESET43,(P+7)
3184 NEXT
3190 FORP=17TO18:RESET50,P:RESET51,(P-1):RESET52,(P-2):RESET53,(P-3)
3191 RESET54,(P-4):RESET55,(P-5):RESET56,(P-6):RESET57,(P-7):RESET58,(P-8)
3192 NEXT:FORP=8TO9:RESET58,P:RESET49,(P+10):NEXT
3193 SET 67,39:SET68,39:SET67,40:SET68,40:PRINTCHR$(0)
3195 FORA=0TO2000:NEXT:PRINTCHR$(0)
4000 PRINT"■■              KRAZY KONG"
4010 PRINT"                    ▔▔▔▔▔▔▔"
4011 PRINT"THE GAME:"
4020 PRINT"  The basic idea is to knock out the"
4030 PRINT"  Plugs by walking/jumping over them"
4040 PRINT"  But avoiding falling down holes"
4050 PRINT"  And fireballs which kill on contact"
4070 PRINT"  Ladders move to different levels"
4100 PRINT"  Keyboard commands!-" :PRINT
4110 PRINT"  Move: ┌─┐          Jump: ┌─────────┐"
4120 PRINT"        ├─┤L├─┤              │SHIFT Z│↑"
4130 PRINT"        │Z├─┤X│              └─┬─────┬─┘"
4140 PRINT"        └─┤ ├─┘                ↑│SHIFT X│"
4150 PRINT"          └─┘                  └─────┘"
4160 PRINT
4170 PRINT"  100 Pts. per plug"
4180 PRINT"  Bonus for defeating kong"
4182 PRINT"  Bonus for ♠ ♦ ♣ ♥"
4183 PRINT"  (crafty jumping on bottom level leads"
4184 PRINT"  to ladder from levels 1 to 3)!!!!"
4185 PRINT"  Press any key for right hand controls"
4186 GETG$:IFG$=""THEN4186
4187 GOSUB9600
4190 FORA=0TO500:NEXT
4210 PRINT:PRINT"■■■■■■          Press space to start"
4220 GETG$:IFG$=""THEN 4220
4230 RETURN
4500 POKEJ-41,253:POKEJ-81,243:POKEJ-80,243:POKEJ-79,251:POKEJ-39,254
4510 POKEJ-41,0:POKEJ-81,0:POKEJ-80,0:POKEJ-79,0:POKEJ-39,0
4520 POKEJ-42,253:POKEJ-82,247:POKEJ-121,247:POKEJ-120,243:POKEJ-119,251
4530 POKEJ-78,251:POKEJ-38,254
4540 POKEJ-42,0:POKEJ-82,0:POKEJ-121,0:POKEJ-120,0:POKEJ-119,0
4550 POKEJ-78,0:POKEJ-38,0
4560 POKEJ,0:RETURN
5000 FORF=0TO40:POKEJ,202:POKEJ,0:NEXT:POKEJ,0
5500 FORF=1TO255STEP15:POKE4514,112:POKE4513,F:USR(68):NEXTF:USR(71):RETURN
6000 PRINT"■■■■"
6010 PRINT"■■■■■■■■■■■■■■■AME OVER"
6020 PRINT"■■■■■■■■■■■■■■■  ▔▔▔▔▔▔▔▔▔▔▔"
6030 PRINT"■■■■■■■■■■■■■■■OU SCORED";A5
6180 GOSUB10000
6200 PRINT"■■■■■■■■■■■■■■■IGH SCORE":HS
6300 RETURN
7000 IFPEEK(J+40)=166THENGOSUB 7020
7010 RETURN
7020 IFJ=53829THENGOSUB 8000:RETURN
7030 IFJ=53825THEN9000
8000 POKEJ,0:POKEJ+1,0:FORF=1TO3:POKEJ,0:J=J-P2:POKEJ,C4:POKEJ+P2,C6
8010 FORF1=0TO50:NEXTF1:NEXTF:POKEJ,0:J=J+1:POKEJ+2,0:POKEJ+1,0:POKEJ,C4
8020 FORF=B7+501TOB7+581STEP40:POKEF,0:FORF1=0TO40:NEXTF1:NEXTF
8030 POKEJ,C4:RETURN
9000 POKEJ,0:POKEJ-1,0:FORF=1TO3:POKEJ,0:J=J-P2:POKEJ,C4:POKEJ+P2,C6
9010 FORF1=0TO50:NEXTF1:NEXTF:POKEJ,0:J=53704:POKEJ+2,0:POKEJ+1,0:POKEJ,C4
9020 FORF=B7+497TOB7+577STEP40:POKEF,0:FORF1=0TO40:NEXTF1:NEXTF
9030 POKEJ,C4:RETURN
9500 TEMPO 4
9510 MUSIC"▔CAR0A#AB▔AR0▔AR0▔F2"
9550 RETURN
9600 PRINT"■■■■■■■■■■  Move: ┌─┐        Jump: ┌─────────┐
9610 PRINT"              ├─┤L├─┤              │SHIFT /│↑
9620 PRINT"              │/├─┤?│              └─┬─────┬─┘
9630 PRINT"              └─┤ ├─┘                ↑│SHIFT ?│
9640 PRINT"                └─┘                  └─────┘
9650 PRINT
9660 RETURN
10000 IFA5>HSTHENHS=A5:RETURN
10010 IFA5<HSTHENRETURN
10030 RETURN
```

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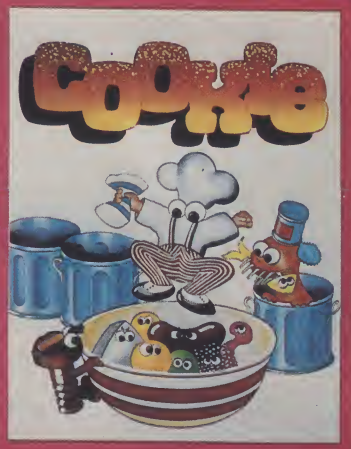

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SOFTWARE AND SWEATSHIRTS TO WIN

All for you — free — courtesy of **Arcadia Software**. One of the country's leading games software producers has joined forces with *Games Computing* to bring you this competition which requires you to conjure up all the wit and humour you are capable of. One of the latest games from **Arcadia** is 'Pasta Blasta' which went on sale just prior to Christmas. It runs on the Oric 1 and sticks to **Arcadia's** tradition of producing true arcade style games software.

The firm originally started life two years ago selling software to run on the Compukit 100 which is now defunct, but at the time was one of the few firms involved in the field. Then about a year ago **Arcadia**, which is run by Tony Love, ventured into the VIC 20 software market which at the time was one of the most popular games micro around. **Arcadia** went from strength to strength and now produce games specifically for the Oric 1 home computer. As games software has always been **Arcadia's** forte there is no likelihood that their policy will change, so we can all look forward to many more great products to emerge from the company.

In fact in January Tony Love's plans are to expand their range of games to cover the Commodore 64 and Spectrum, the first game being the very successful Mushroom Mania which will be available on both machines. And round about the same time you'll be able to buy one of **Arcadia's** special sweatshirts. As yet none are available but the shirts will feature a picture from Mushroom Mania and sport the words 'I'm a Mushroom Maniac along with an Arcadia logo.

WHAT YOU WIN

The winner of this competition will win a copy of each of **Arcadia's** range of games, one of the new sweatshirts and a year's free subscription to *Games Computing*. Altogether we will pick five winners of the competition. The four runners up will each receive a sweatshirt and a copy of each of **Arcadia's** games.

HOW TO WIN ARCADIA GAMES

It's easy. Below you'll see a copy of the cartoon used in all the latest **Arcadia** adverts. As you can no doubt see the picture itself is entertaining to look at, be it at a glance or by studying it. What we want you to do is have a good long look at the cartoon and write a caption for it. Be as funny as you can possibly be, but make sure that you make your caption relevant both to the picture, either generally or a specific subject in it, and maybe relevant to **Arcadia**.

Once all the entries have been sent to us **Arcadia** *and Games Computing* will get together and pick out the most imaginative five. Make sure you fill in the coupon correctly and send it to the address shown.

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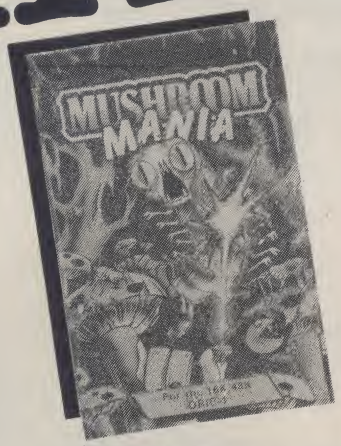

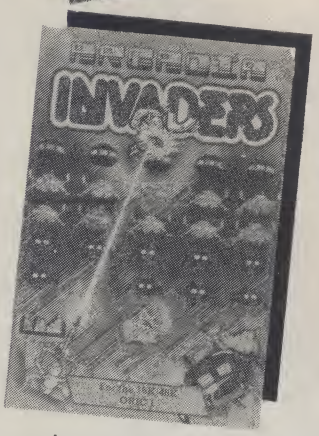

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2. As long as the correct coupon is used for each entry, there is no limit to the number of entries per person, but photocopies of it won't be accepted.
3. All entries must be postmarked before February 29 1984.
4. The prizes will be awarded to the five entries judged to be worthy winners on merit by the Editor and Tony Love of Arcadia.
5. No correspondence will be entered into with regard to the competition results and it is a condition of entry that the Editor's decision is accepted as final.
6. The winners will be notified by post and the results will be published in a future issue of *Games Computing*.

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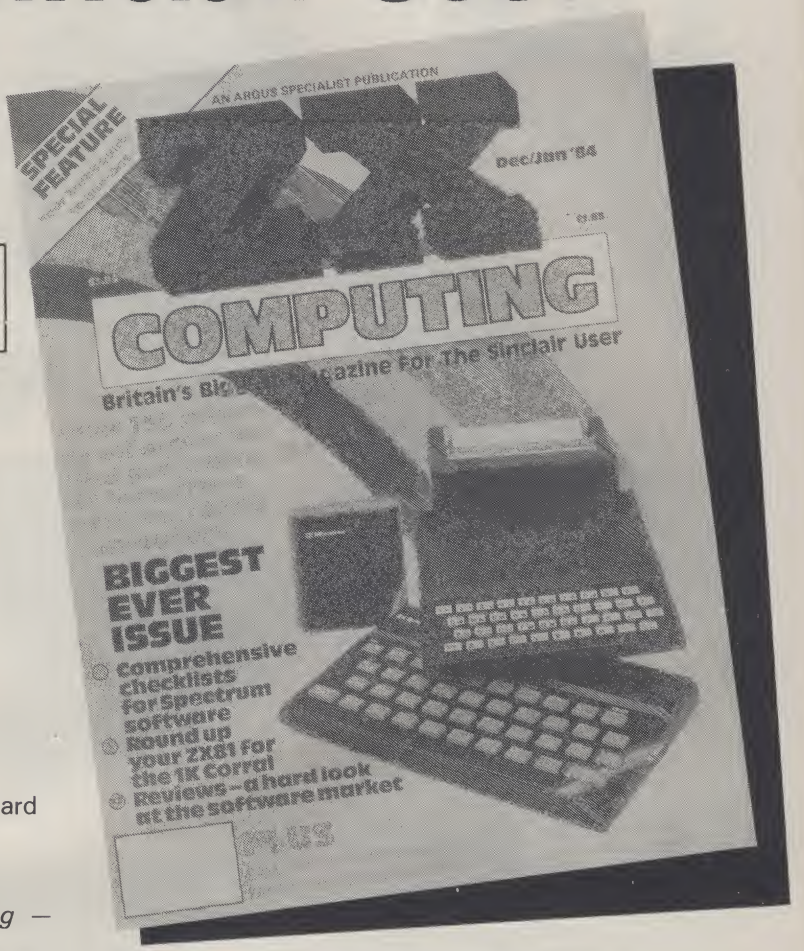

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Wu

With 400 locations to explore, countless enemies to attack or avoid, 10 skill levels and hoards of golden coins to collect; Wumpus Hunt for the 48K Oric is sure to interest many users.

Graphically the game is neat but not really stunning (what d'ya expect with only three user defined graphic characters?). A 20 by 20 grid on the upper left-hand side takes up most of the screen. The three characters which are used signify your present location, locations already visited and unexplored locations.- Along two sides of the grid is a scale, this enables the user to note hazardous locations to avoid or locations with items of possible use later on. The present location description and any action is displayed along the bottom 4 lines. And on the right-hand side are the important status numbers. They tell you your strength, weight and energy also the number of gold coins and objects you are carrying.

The aim of the game is to get in the same square as the Wumpus (not as easy as it sounds) and a battle is fought; the outcome depending on your strength (preferably high), your weight (preferably low), your energy (preferably high) and the amount of weaponry you're carrying (preferably high). Wumpus' sleep inducer also adds considerably to your chances of capturing the Wumpus. Then you must take it to the teleport station.

Controls

Q	to go North-West
A	to go West
Z	to go South-West
W	to go North
S	to Fight
X	to go South
E	to go North-East
D	to go East
C	to go South-East
I	to look at Inventory
J	to Drop something
O	to Open box (with key)
K	to use Strength
P	to Quit
L	to Get something

mpus Hunt

Runs on 48K Oric

The Game

The level of difficulty determines the number of friendly and unfriendly people. Only friendly people will sell items. An unfriendly person can (and usually will) attack you. Bats are harmless but superbats certainly aren't. Zombies wander around the place stealing objects and being unhelpful if possible. Giant spiders can, if in the mood, entangle you in a web.

Sometimes tramps will sell food, wizards will sell some potent elixer, elves will sell keys and some warriors will sell swords, daggers, helmets, shields and suits of armour.

A substantial number of locked boxes are to be found in the Land of the Wild Wumpus. If you can open these boxes, some of the things which you'll find are: food, daggers, swords (short), armour, keys, gold coins, black disks, bags of marbles, tins of superbat repellent(!) and Wumpus sleep inducer.

A box can be opened in two ways, with conventional keys or by using strength.

The boxes in this wondrous land are rather unusual. For a start the lock eats the keys when they have opened the box. This means that the key can open only one box befor it's useless, in way of recompense the locks 'll eat any ol' key, so every key will open any box.

Also the boxes are sensitive to extreme pressures. If your total energy and strength is too high the box will positively refuse to open and will even threaten to blow the square sky high. Using strength to open boxes will decrease your strength by 1 each time, the boxes won't always spring open either.

Also featuring in this game of course and cunning are several neutral locations. Swampy, rocky and hilly grounds are common. Fans of 'A Country Practice' will recognise a fat little Wombat which crawls about.

After a few turns you may have noticed that your energy points have decreased. No, it isn't a bug, your Wumpus hunting warrior is probably getting hungry! To increase your energy points, you use the 'get' command on food, or buy it from somebody.

Scoring

For every person killed, you get between 20 and 29 points. Each item that you carry is worth a certain number of points between 2 and 30. The number of gold coins in your possession adds that number to your score. If you manage to capture the Wumpus, you get 1000 points for each man left.

Hints to Play

It may seem impossible to win the battles at first, the idea is to get some weapons then go off on a killing spree. Don't just go around collecting gold coins either, you're not there to steal the country's money. Anyway, it will just increase your weight until you can't get the Wumpus, the Wumpus is your real target.

When you arrive in a square occupied

by a hostile person or creature, quickly press the attack key or exit the square. Pressing the attack key before they attack gives you an advantage. Attacking a friendly person gives them an advantage and if you don't kill them, they turn into unfriendly people.

Every object in the game has a purpose. Think about it and you could get a welcome surprise.

RUNdown

Line	Action
1-16	DIMensioning arrays, initialisation, GOTO 1500.
19-44	Main checking routines, updates display, GOTO 110.
70-100	Setting up display routine, used once per game.
110-138	Update location description, jumps to various sections.
144-148	Secondary checking routine.
150-192	Input section, inputs checked and processed.
200-202	Grizzly bear got you routine, jump to escape routine.
210-212	Caught in spiders web routine.
220-234	Escape routine.
240-244	Bottomless pit routine.
246-248	Life lost routine.
260	Tramp sell data.
270-288	Warrior sell data.
300-302	Wizard sell data.
310-312	Elves sell data.
320-348	Sell routine for sell data.
360-385	Fighting routine, jump to life lost routine.
390-422	Wumpus capture routine.
450-456	Inventory routine.
470-504	Drop object routine.
508-546	Get object routine.
570-592	Open with key routine (box).
620-634	Open with strength routine (box).
700-706	Quit routine.
800-824	Game over routine, jump to little page routine.
850-880	Return to teleport station with Wumpus routine.
1000-1002	Clear bottom 4 lines routine. Most routines jump here.
1500-1554	Initialisation of decriptions of locations.
1560-1570	Initialisation of descriptions of contents of boxes.
1580-1590	Redefining characters for display.
1600-1620	Initialisation of various values for objects.
1640-1642	Initialisation of words used in fighting routine.
1700-1720	Title page and tune.
1800-1816	Input skill level, reset variables.
1830-1885	Loops for locating different locations.
2000-2016	Locating different locations.
2100-2122	Putting objects in locations routine.

If you find that the fighting routine is too easy or hard, the IF . . . THEN statement in line 376 should be altered.

Lines 402 and 404 control the Wumpus capture routine. Line 627 controls the chance of a box exploding. Every time you are required to input something, a PING is heard. If this system proves too noisey, the relevent lines can easily be altered.

Variables Used

A1 (19,19,0)	Holds values for different locations. Values 0 to 33.
(19,19,1)	Values 0 or 1.
B% (19,19,9)	Number of objects in location. Last number corresponds to inventory number. Values 0 to various.
C$ (33)	Descriptions of locations.
D$ (33)	Descriptions of locations.
S,S$	Strength value, in numeric and string form.
W,W$	Weigh values, in numeric and string form.
F,F$	Energy value, in numeric and string form.
O,O$	Number of objects, in numeric and string form.
G,G$	Number of gold coins, in numeric and string forms.
L%	Number of lives left.
P% (6)	Objects which you carry, in numeric form.
P$ (6)	Objects which you carry, in string form.
P1% (6)	Total number of each kind of object possible to carry.
P1$ (6)	Description of each object for inventory.
P2% (9)	Value of each item for score.
K$ (9)	Descriptions of objects for search.
W1 (9)	Weight of objects, for adding to initial weight (or deducting).
L1$ (9)	Words for fights.
E$ (9)	Objects in locked boxes, string form (descriptions).
X%,Y%	Co-ordinates for plotting your present location.
Q%,R%	Co-ordinates for plotting locations already visited.
H,H$	High score, in numeric and string form.
N$	Name of high score holder.
B	Skill level input.
I$	General input, as the main input it is in a I$=KEY$ form.
E%	Timer on input.
U2	Enemy advantage when you attack friendly people.
U1	Your advantage if you attack first, increases if you attack superbats with superbat repellent.
U%	If the Wumpus is caught, this has a value of 1, else it has a value of 0.
K%	Numerical value of location, much shorter than the equivalent A1 (X%—2, Y%—1,0).
S%	Points for killings count, added to other counts for score.
Y1	Escaping from grizzly, once caught you don't get caught again there.
Y2	Escaping from giant spiders web, so that once escaped from web you don't get caught in that one again.
C1%	NUmber for escaping grizzly or web.
C2	Number for escaping grizzly or web.
E1	Weight of object for buying routine.
D3%,D2%, C1%	Numbers for calculating price of objects sold.
KA,KC	The two numbers that determine if you have captured the Wumpus when you attack it.

Conversion Clues

This program should be fairly easy to convert to other micros, most of it is written in near standard BASIC. Non specific REMs split up the sections or routines.

The screen size of the ORIC is 27 rows by 38 columns. The command PLOT X,Y,Z, is used for plotting. Where X is the column (values 1 to 38), Y is the row (values 0 to 26) and Z is a string (Z$) or an attribute. When the value of Z is between 0 and 7 the attribute alters the foreground colour from the X,Y co-ordinates to the end of the line. When the value of Z is between 8 and 15, the character set used (single height, double height, standard set, alternative set, flashing or steady) is changed from the X,Y co-ordinate to the end of theline. When the value of the attribute is between 16 and 23, the background colour from the X,Y co-ordinate to the end of the line is altered.

PLOT 1,0 "Hi" produces Hi in the top left corner.

XX=FRE("") forces variable garbage collection.

FOR T=48000 TO 48039: POKE T,22: NEXT pokes a line of cyan background colour along the top of the screen.

LISTING

```
1 REM ---------------------------------
2 REM |                               |
3 REM |                               |
4 REM |     W U M P U S   H U N T     |
5 REM |                               |
6 REM |          by  D.T.Wright       |
7 REM |                               |
8 REM |                               |
9 REM ---------------------------------
10 PRINTCHR$(17)CHR$(6):POKE48035,0
12 DIMA1(19,19,1),B%(19,19,9),C$(33),D$(33)
14 N$="First game":H$="000":INK2:PAPER0
16 GOTO1500
18 REM-------------------------------------------------------------------------
---------
19 Y1=0:Y2=0
20 F=F-.15
21 WAIT60:IFF<4THENS=S-.2
22 IFW>18THENS=S-.2
23 IFS<0THEN246
24 G=INT(G)
25 IFF>16THENS=S+1
26 IFS>20THENS=20
27 IFF>20THENF=20
28 IFF<0THEN246
30 G$=STR$(G):W$=STR$(W):S$=STR$(S):O$=STR$(O):F$=STR$(F)
31 GOSUB1000
32 IFY%>20THENY%=20
33 IFY%<1THENY%=1
34 IFX%>21THENX%=21
35 IFX%<2THENX%=2
36 K%=A1(X%-2,Y%-1,0):I$=""
38 FORT=0TO7:P$(T)=STR$(P%(T)):NEXT
40 FORT=8TO12:PLOT34,T,"    ":NEXT
42 W$=LEFT$(W$,3):S$=LEFT$(S$,3):O$=LEFT$(O$,3):F$=LEFT$(F$,3)
44 GOTO110
69 REM-------------------------------------------------------------------------
---------
70 CLS:EXPLODE:FORT=48002TO48039:POKET,22:NEXT
72 PLOT1,21,22:PLOT3,21,0:PLOT14,21,"WUMPUS HUNT"
74 FORT=1TO3:PLOT24,T,6:NEXT
76 FORT=0TO14:IFT=5THENNEXT
78 IFT=4ORT=6THENPLOT23,T,22:NEXT
80 IFT=14THENPLOT23,14,22:GOTO84
82 PLOT23,T,22:PLOT24,T,16:PLOT38,T,22:NEXT
84 PLOT26,1,"High-":PLOT30,2,"by":PLOT31,1,H$:PLOTINT(25+((12-LEN(N
$))/2)),3,N$
```

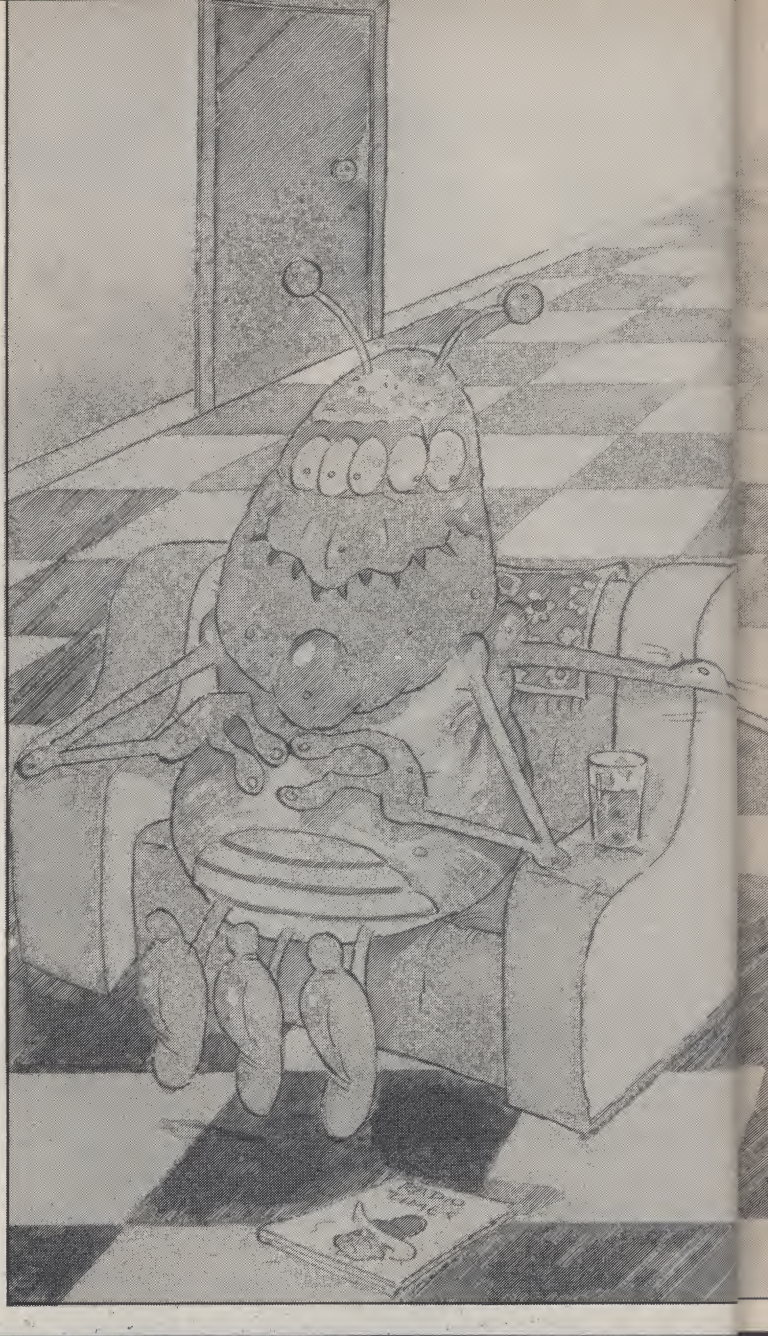
```
86 PLOT25,8,"Gold   -":PLOT25,9,"Strength-":PLOT25,10,"Weight  -
88 PLOT25,11,"Objects -":PLOT25,12,"Energy  -":PLOT24,15,"KEY CONTR
OLS
90 PLOT23,16,"W=North F=QUIT":PLOT23,17,"X=South O=Open
92 PLOT23,18,"D=East  L=Get":PLOT23,19,"A=West  I=Invent
94 PLOT23,20,"S=Fight J=Drop":FORT=15TO20:PLOT22,T,5:NEXT
96 FORT=2TO21:FORT2=1TO20:PLOTT,T2,"%":NEXT:NEXT
98 FORT=0TO9:PLOT1,T+1,48+T:NEXT:FORT=0TO9:PLOT1,T+11,48+T:NEXT
100 FORT=2TO21:PLOTT,0,65+(T-2):NEXT:E%=28
109 REM----------
---------
110 PLOTINT((38-LEN(C$(K%)))/2),23,C$(K%):PLOT33,8,G#:PLOT34,9,S$:P
LOT34,10,W$
112 PLOTINT((38-LEN(D$(K%)))/2),24,D$(K%):PLOT34,11,O#:PLOT34,12,F$

114 PLOTO%,R%,"+":PLOTX%,Y%,"$":E%=0
116 Z=INT(RND(1)*5+B):IFZ<B+2THEN122
118 IFK%=15THEN200
120 IFK%=21THEN210
122 IFK%=23THEN390
124 IFK%=19THEN240
126 Z=INT(RND(1)*5+B):IFZ<B+3THEN136
128 IFK%=2THEN270
130 IFK%=24THEN300
132 IFK%=25THEN310
134 IFK%=3THEN260
136 IFK%=28THEN850
138 GOTO150
144 WAIT200:GOSUB1000
145 FORT=8TO12:PLOT34,T,"    ":NEXT:E%=0
146 PLOTINT((38-LEN(C$(K%)))/2),23,C$(K%):PLOT33,8,G#:PLOT34,9,S$:P
LOT34,10,W$
148 PLOTINT((38-LEN(D$(K%)))/2),24,D$(K%):PLOT34,11,O#:PLOT34,12,F$

150 U1=0:U2=0:I$=KEY$:IFI$=""THENE%=E%+1ELSE160
152 IFE%>30ANDK%=16THEN360
154 IFE%>18ANDK%=18THEN360
156 IFE%>25ANDK%=20THEN360
157 IFE%>125OTHENEXPLODE:PLOT12,26,"GET A MOVE ON!":WAIT200:E%=0:GO
TO150
158 IFE%>35ANDK%=21THEN360ELSE150
160 O%=X%:R%=Y%:I=0:XX=FRE("")
162 IFI$="W"ORI$="w"THENY%=Y%-1:GOTO19
164 IFI$="X"ORI$="x"THENY%=Y%+1:GOTO19
166 IFI$="D"ORI$="d"THENX%=X%+1:GOTO19
168 IFI$="A"ORI$="a"THENX%=X%-1:GOTO19
170 IFI$="Q"ORI$="q"THENX%=X%-1:Y%=Y%-1:GOTO19
172 IFI$="E"ORI$="e"THENX%=X%+1:Y%=Y%-1:GOTO19
174 IFI$="Z"ORI$="z"THENX%=X%-1:Y%=Y%+1:GOTO19
176 IFI$="C"ORI$="c"THENX%=X%+1:Y%=Y%+1:GOTO19
178 IFI$="I"ORI$="i"THEN450
180 IFI$="J"ORI$="j"THEN470
182 IFI$="S"ORI$="s"THENU1=1:GOTO361
184 IFI$="O"ORI$="o"THEN570
186 IFI$="L"ORI$="l"THEN508
188 IFI$="K"ORI$="k"THEN620
190 IFI$="P"ORI$="p"THEN700
192 PING:GOTO144
199 REM----------
---------
200 IFY1=1THEN144
201 X=RND(1)*5:IFX>3.5THEN202ELSE144
202 PLOT1,25,"    You really are in a mess now! .  ":C1%=5:C2=2:C3=
2:GOTO220
209 REM----------
---------
210 IFY2=1THEN144
211 X=RND(1)*5:IFX>4.3THEN212ELSE144
212 PLOT1,25," He spins a massive web around you.  ":C1%=6:C2=3:C3=
2
219 REM----------
---------
220 IFS>INT(RND(1)*C1%+B)THEN232
224 WAIT150:GOSUB1000
225 PLOT1,23," SELECT:strength points to escape.":PING:GETI$:I=VAL(
I$)
226 IFI<C1%ANDI<STHENS=S-I:F=F-1:GOTO229
227 IFS<=2THEN246ELSEIFS<ITHENPLOT14,26,"Too high!
228 GOTO224
229 IFI<INT(RND(1)*C2+C3)THEN232
230 PLOT3,26,"Hard cheese!You're still caught.":GOTO224
231 WAIT140:PLOT8,26,"Well done,you've escaped":WAIT150
233 IFC2=3THENY2=1ELSEY1=1
234 GOTO20
239 REM----------
---------
240 WAIT100:GOSUB1000
241 IFS-RND(1)*15+BTHENPLOT4,25,"Because of your strength you."ELSE
245
242 PLOT8,24,"grabbed hold of a branch and sn a
244 PLOT8,25,"life hasn't been lost.":S=S-INT(RND(1)*3):GOTO144
245 A1(X%-2,Y%-1,0)=29
246 WAIT50:PLOT1,26,"...HARD CHEDDAR!YOU'VE LOST A LIFE...":L%=L%-1
:S=18-B
248 F=18-B:IFL%=0THEN800ELSEWAIT160:U1=0:GOTO20
259 REM----------
---------
260 PLOT1,25,"...The tramp offers you some food...":D2%=60:D3%=10:C
1%=9:GOTO320
269 REM----------
---------
270 Z=INT(RND(1)*4):IFZ=0THENE1=1:C1%=0:D2%=30:D3%=28:GOTO280
272 IFZ=1THENE1=1:D2%=40:D3%=25:C1%=2:GOTO282
274 IFZ=2THENE1=.4:D2%=50:D3%=15:C1%=1:GOTO284
276 IFZ=3THENE1=3:D2%=38:D3%=70:C1%=2:GOTO286
278 IFZ=4THENE1=1:D2%=45:D3%=26:C1%=2:GOTO288
280 PLOT1,26,"...They offer a fine golden sword...":GOTO320
282 PLOT1,26,"...A small round shield is offered...":GOTO320
284 PLOT1,26,".They offer a Stay-Sharp (TM) dagger.":GOTO320
286 PLOT1,26,"A suit of royal chain mail is offered":GOTO320
288 PLOT1,26,".They toss a slightly dented helmet..":GOTO320
299 REM----------
---------
300 PLOT1,25,"...The Wizard offers you an elixer...":D2%=20:D3%=100

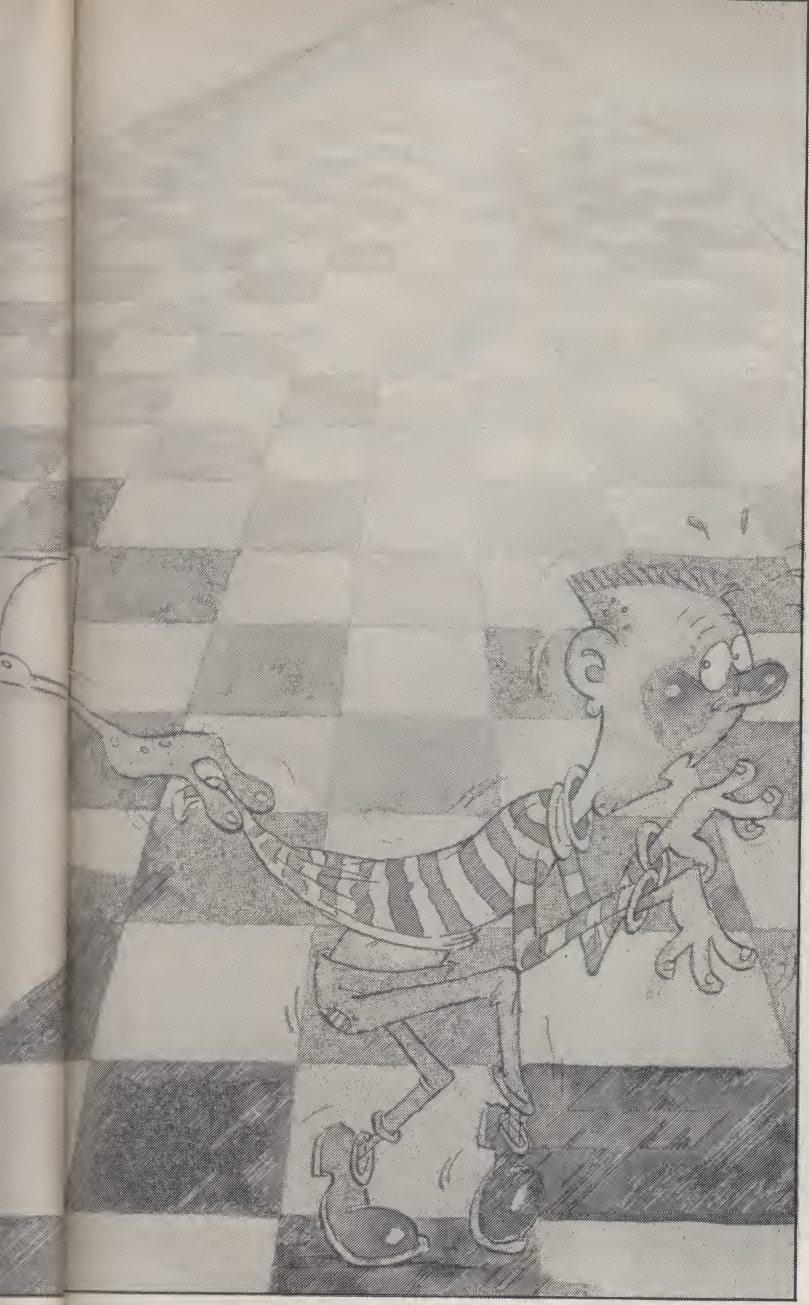
302 PLOT1,26,"Which increases all of your powers...":C1%=10:GOTO320
309 REM----------
---------
310 PLOT1,26,".....They have many keys to sell.....":D2%=50:D3%=11
312 C1%=3:E1=.15
319 REM----------
---------
320 WAIT200:GOSUB1000
321 I=(INT((RND(1)*10)*(G/D2%))+D3%)
322 PLOT5,26,"and so asks for    gold coins":PLOT17,26,STR$(I)
324 WAIT60:PING:PLOT1,25,"SELECT : (1) yes  (A) Forget it buddy.":G
ET1$
325 PLOT1,26,"                                "
326 IF1$="A"THEN144
328 IF1$="1"THEN330ELSE324
330 IFG-I<0THENPLOT7,26,"You can't afford it.":GOTO144
332 IFC1%=9THEN342
334 IFC1%=10THEN346
144
338 IFW+F1>20THENPLOT6,26,"You can't carry any more.":GOTO144
339 IFD3%=70THENP%(C1%)=P%(C1%)+3:W=W+E1:O=O+3:G=G-I:GOTO20
340 W=W+E1:O=O+1:P%(C1%)=P%(C1%)+1:G=G-I:GOTO20
342 IFF<18THENPLOT3,26,"Greedy pig!You've already eaten.":GOTO144
344 F=F+2:G=G-I:S=S+.5:GOTO544
346 FORT=1TO12:MUSIC1,3,T,0:PLAY1,0,1,1000:WAIT30-T:NEXT:PLAY0,0,0,
0
348 G=G-1:S=S+6:F=F+6:W=W-4:GOTO20
359 REM----------
---------
360 PLOT1,22,"Unfortunately you have been attacked."
361 IFK%=25THENPLOT1,26,"ELF BASHER!They're an endangered lot!":S=S
-1:GOTO144
362 IFK%=24THENPLOT1,25,"The Wizard roars.Do you dare to attack"ELS
E364
363 PLOT1,26,"me?With one wave,he destroys you.....":WAIT300:EXPLOD
E:GOTO246
364 IFK%=0ORK%=10RK%=40RK%=150RK%=220RK%=260RK%=270RK%=280RK%=290RK
%=31THEN369
365 IFK%=30THENPLOT7,26,"STOP TRYING TO ROB IT IN":GOTO144ELSEIFK%=
33THEN369
366 FORT=5TO14:IFK%=ITHENPLOT10,26,"I HOPE YOU'RE WELL":GOTO144ELSE
NEXT
367 IFK%=20RK%=30RK%=32THENPLOT10,26,"THAT WASN'T WISE":A1(X%-2,Y%-
1,0)=1^:U2=1
368 GOTO370
369 PLOT6,26,"NOTHING TO ATTACK! ERROR.":GOTO144
370 WAIT100:GOSUB1000:PLOT4,23,"SELECT:strength points to attack":P
ING:GETI$
371 I=VAL(I$):IFS<1THEN246ELSEIFI<5ANDI<5ANDI>0THENS=S-I:GOTO372ELS
E370
372 WAIT60:GOSUB1000:FORT=1TO6:Z1=INT(RND(1)*9):Z2=INT(RND(1)*25+5)
373 Z3=INT(RND(1)*4+22):PLOTZ2,Z3,L1$(Z1):MUSIC1,0,T,0
374 PLAY1,0,4,1000:WAIT60-T*3:PLOTZ2,Z3,"          ":NEXT:PLAY0,0,0,
0
375 IFK%=18ANDP%(5)>0THENU1=U1+1
376 IFI+P%(0)+P%(1)/2+P%(2)+(16-W)+U1>RND(1)*10+6+U2THEN381
377 PLOT2,24,"Unfortunately you have been beaten.":I=INT(RND(1)*S+F
):WAIT100
378 IFI<15THENPLOT8,25,"In fact you're now dead..":WAIT60:GOTO246
379 I=INT(RND(1)*4):PLOT3,26,"You have lost  strength points.
380 PLOT16,26,STR$(I):S=S-I:U1=0:WAIT99:GOTO20
381 PLOT1,25,"You are victorious!The foe are beater":I=INT(RND(1)*2
)
382 L=INT(RND(1)*10+2):S=S-I:PLOT3,26,"You have lost  strength poi
nts.
383 PLOT16,26,STR$(I):WAIT200:PLOT3,26,"You have found  gold coin
s...."
384 PLOT17,26,STR$(L):G=G+L:A1(X%-2,Y%-1,J)=1:A1(X%-2,Y%-1,0)=30:WA
IT99
385 O=O+1:U1=0:S%=S%+20+B:GOTO20
389 REM----------
---------
390 WAIT60:PLOT1,23,"     OOICH!       PRESS A KEY          ":E%=0
392 I$=KEY$:IFI$=""THENE%=E%+1ELSE396
394 IFE%=70THEN414ELSE392
396 PLOT1,24,"SELECT : strength points to attack.":PING:GETI$:ZAP:W
AIT100
398 I=VAL(I$):IFI<5ANDI>0THEN399ELSE396
399 IFS<2THEN246
400 IFI>STHEN396
402 FA=1+P%(0)+P%(1)/2+P%(2)+P%(7)*2+(16-W)+RND(1)*3
404 KC=RND(1)*5+RND(1)*5+10:S=S-I
406 IFFA<KCTHEN414
408 PLOT4,25,"You have captured the Wumpus!":WAIT60
410 PLOT1,26,"Now you must take it to civilisation":U%=1
412 A1(X%-2,Y%-1,0)=42:GOTO144
414 PLOT7,25,"The Wumpus has escaped!
416 PLOT6,26,"And has stolen some gold!":G=INT(G-((G/30)*B+1))
418 X=INT(RND(1)*19):Y=INT(RND(1)*19)
420 IFA1(X,Y,0)<>28THENA1(X,Y,0)=23:A1(X%-2,Y%-1,0)=32ELSE418
422 WAIT150:GOTO20
449 REM----------
---------
450 GOSUB1000:IFK%=17ORK%=16THENPLOT7,26,"You are told to sod off!"
:GOTO144
451 X=RND(1)*3:IFX<1THENPLOT3,25,"Unfortunately a ZOMBIE chases you
"ELSE453
452 PLOT7,26,"and you have to move away":GOTO144
453 PLOT14,22,"INVENTORY":FORT=0TO7:PLOT6,24,P1#(T)
454 PLOT1,24,STR$(T):PLOT3,24,")"
455 PLOT27,24,P$(T):PING:PLOT12,26,"PRESS ANY KEY
456 GET1$:NEXT:GOTO144
469 REM----------
---------
470 WAIT150:GOSUB1000:IFK%=17THENPLOT5,26,"The tramp doesn't like y
ou":GOTO144
471 PLOT13,22,"DROP OBJECT":PLOT1,24,"SELECT  : object number (A)fo
rget":PING
472 GET1$:PLOT13,26,"Selected":PLOT23,26,I$:IFI$="A"ORI$="a"THEN144
ELSEWAIT120
473 I=VAL(I$):PLOT10,26,P1#(I):IFI<8THEN474ELSEPLOT13,26,"
 ":GOTO471
474 IFP%(I)<1THENPLOT1,26,"You cannot drop what you don't have":GOT
O470
475 X=INT(RND(1)*15+B):IFX<13THENO=O-1:P%(I)=P%(I)-1ELSE477
476 PLOT1,26,"A Zombie takes the object and eats it!":WAIT150:GOTO2
0
477 FORT=5TO14:IFA1(X%-2,Y%-1,1)=0ANDK%=ITHEN478ELSENEXT:GOTO480
478 PLOT2,26,"A naughty elf takes the object and
479 WAIT200:PLOT6,26,"has put it in a locked box":GOTO483
480 IFI=5ANDK%=25THEN490
481 IFI=6ANDK%=24THEN500
482 A1(X%-2,Y%-1,1)=I
483 W=W-P1%(I):O=O-1:P%(I)=P%(I)-1
484 B%(X%-2,Y%-1,I)=B%(X%-2,Y%-1,I)+1:GOTO20
490 PLOT1,23,"   The elves gladly take the gift":S=S+3
492 PLOT1,24," They give you 2 strength pills which
494 PLOT1,25,"  increases your strength by three.
496 W=W-.1:O=O-1:P%(I)=P%(I)-1:WAIT300:GOTO20
500 PLOT1,23," Well done,the Wizard can now use his
502 PLOT1,24,"  Apple.He gives you 200 gold coins
504 PLOT1,25,"    and a weight reduction pill.":G=G+200:GOTO496
507 REM----------
```

```
508 GOSUB1000:IFK%=17ORK%=16THENPLOT7,26,"You are told to clear off
!":GOTO144
509 PLOT14,22,"GET OBJECT":PLOT6,26,"Do you want to search Y/N":PIN
G
510 GETI$:IFI$="Y"THENPLOT3,23,"These are the objects in the area."
ELSE515
511 FORT=5TO14:IFK%=TTHENPLOT3,26,"Do you think I have X-ray eyes?"
:GOTO144
512 NEXT
513 FORT=0TO9:PLOT1,24,STR$(T):PLOT3,24,")":PLOT6,24,K$(T)
514 PLOT27,24,STR$(B%(X%-2,Y%-1,T)):PING:PLOT12,25,"PRESS ANY KEY."
:GETI$:NEXT
515 IFA1(X%-2,Y%-1,1)=0THENPLOT3,26,"        This box is locked
  ":GOTO144
516 WAIT100:GOSUB1000:PLOT1,26,"SELECT :number of object  (A)leave
it
517 PLOT12,25,"                ":PING:GETI$:IFI$="A"ORI$="a"THEN144
518 PLOT1,26,"                                    ":I=VAL(I$)
519 IFI<10THEN520ELSE515
520 IFB%(X%-2,Y%-1,I)<1THENPLOT7,26,"Sorry,none of those here.":GOT
O515
522 IFW+W1(I)>20THENPLOT7,26,"You can't carry any more.":GOTO515
524 IFP%(I)=F1%(I)THENPLOT7,26,"Can't carry more of them.":GOTO515
527 IFI=8THENO=O+1:GOTO540ELSEO=O+1
528 IFI=9THEN536
532 B%(X%-2,Y%-1,I)=B%(X%-2,Y%-1,I)-1:W=W+W1(I)
533 FORT=5TO14:IFK%=TTHENA1(X%-2,Y%-1,0)=27ELSENEXT
534 IFK%=26THENA1(X%-2,Y%-1,0)=27
535 P%(I)=P%(I)+1:GOTO20
536 IFA1(X%-2,Y%-1,0)=26THENG=G+32:A1(X%-2,Y%-1,0)=27:GOTO532
538 X=INT(RND(1)*20+10):G=G+X:A1(X%-2,Y%-1,0)=29:GOTO532
540 IFF>17THENPLOT4,26,"Greedy pig.You're not hungry.":GOTO20
542 F=F+1+RND(1)*2:W=W+W1(I):A1(X%-2,Y%-1,0)=27:S=S+.5
544 PLOT14,26,1:PLOT15,26,12:PLOT16,26,"CHOMP!":SOUND4,100,0:PLAY0,
1,4,1000
546 WAIT250:PLAY0,0,0,0:GOTO20
569 REM-----------------------------------------------------------
---------
570 IFK%=26ORK%=27THENPLOT6,26,"This box is already open.":GOTO144
571 IFK%=17ORK%=16THENPLOT8,26,"You are told to go home.":GOTO144
572 FORT=5TO14:IFK%=TTHEN576ELSENEXT
574 PLOT8,26,"No box here you twerp!":GOTO144
586 P%(3)=P%(3)-1:O=O-1
588 GOSUB1000
589 PLOT6,24,"The box springs open and .":MUSIC1,1,1,0:PLAY1,0,1,10
00
590 PLOTINT((38-LEN(E$(K%-5)))/2),25,E$(K%-5):A1(X%-2,Y%-1,1)=1:WAI
T60
592 A1(X%-2,Y%-1,0)=26:WAIT200:GOTO20
619 REM-----------------------------------------------------------
---------
620 GOSUB1000:MUSIC1,1,1,0:PLAY1,1,1,2000:WAIT50
621 IFK%=26ORK%=27THEN570
622 FORT=5TO14:IFT=K%THEN624ELSENEXT
623 PLOT13,26,"No box here.":GOTO144
624 IFS<5THENPLOT5,26,"You are too weak to open it..":GOTO144
625 IFK%=26ORK%=27THEN570
626 IFK%=17ORK%=16THENPLOT9,26,"You must be joking":GOTO144
627 S=S-1:IFS+F>32-BTHENPLOT4,25,"The box groans,turns blue and"ELS
E630
628 PLOT1,26,"threatens to blow this place sky high":A1(X%-2,Y%-1,0
)=29:WAIT150
629 X=RND(1)*5+1:IFX<1.9THENEXPLODE:GOTO246ELSE20
630 X=RND(1)*2+1:IFX<1.5THEN634
632 GOTO588
634 PLOT1,26,"The box smirks,'try harder'it urges!":WAIT150:GOTO20
699 REM-----------------------------------------------------------
---------
700 GOSUB1000
702 PLOT1,23,"Do you really want to quit.....Y/N":PING:GETI$
704 IFI$="Y"ORI$="y"THEN800
706 IFI$="N"ORI$="n"THEN144ELSE702
799 REM-----------------------------------------------------------
---------
800 GOSUB1000
802 PLOT1,23,12:PLOT15,24,"GAME OVER"
804 FORT=1TO10:MUSIC1,2,T,0:MUSIC2,4,T+1,15
806 MUSIC3,4,12,0:PLAY2,2,7,1000:NEXT:PLAY0,0,0,0:WAIT100
807 I1=((S+F)-W/2)*10+G:FORT=0TO9:I2=P2%(T)*P%(T):NEXT:I3=I1+I2+G+S
%
808 IFI3>HTHENPLOT7,24,"You have a high score -":PLOT32,24,STR$(I3)
ELSE816
810 WAIT300:CLS:INPUT"Enter name then press <return>";N$
812 IFLEN(N$)>12THENPING:GOTO810
814 H$=STR$(INT(I3)):H=INT(I3):GOTO820
816 PLOT10,24,"Your score was -":PLOT26,25,STR$(I3):WAIT50
820 PLOT11,26,"Another game  Y/N":PING:GETI$
821 FORT=48000TO49080:POKET,RND(1)*7+16:NEXT:WAIT300
822 IFI$="Y"ORI$="y"THEN1700
824 IFI$="N"ORI$="n"THENEXPLODE:CLS:ENDELSE820
849 REM-----------------------------------------------------------
---------
850 IFA1(X%-2,Y%-1,0)=28ANDU%=1THEN852ELSE150
852 CLS:PLOT9,1,10:PLOT9,2,10:PLOT10,1,1:PLOT10,2,1
854 PLOT11,1,"CONGRATULATIONS":PLOT11,2,"CONGRATULATIONS
856 PLOT1,5,"The teleport machine whisks you home.
858 PLOT2,7,"The king thanks you for the Wumpus.
860 PLOT1,9,"And gives you 1000 gold coins per man
862 PLOT14,11,"surviving.":X=L%*1000
864 PLOT7,15,STR$(X):PLOT15,15,"GOLD COINS
866 G=G+X:T$="0109090604030201010105070806020502050403020 9"
868 FORT=1TO44STEP2:T1=VAL(MID$(T$,T,2))
870 MUSIC1,3,T1,0:PLAY1,0,1,1000:WAIT100-T*2:NEXT
880 WAIT50:GOTO800
999 REM-----------------------------------------------------------
---------
1000 FORT=22TO26:PLOT1,T,"                                        ":N
EXT
1002 XX=FRE(""):RETURN
1499 REM-----------------------------------------------------------
---------
1500 FORT=0TO4:READX$,Y$:C$(T)=X$:D$(T)=Y$:NEXT
1502 DATA"Disturbed by you,a group of BATS","flap harmlessly past.
1504 DATA"A few ROCKS litter the ground,no","gold here!
1506 DATA"You stumble across a group of","FRIENDLY WARRIORS.
1508 DATA"You meet a lonely and very","dirty TRAMP.
1510 DATA"Lucky blighter!You find a hoard","of GOLD COINS.
1512 FORT=5TO14:C$(T)="You find a small but heavy,locked"
1514 D$(T)="BOX.":NEXT
1516 FORT=15TO33:READX$,Y$:C$(T)=X$:D$(T)=Y$:NEXT
1518 DATA"A rather rude grizzly bear grabs you","and won't let go!
1520 DATA"You stumble upon a group of","UNFRIENDLY WARRIORS.
1522 DATA"You meet a dirty and nasty","UNFRIENDLY TRAMP.
1524 DATA"A squadron of attacking","SUPERBATS appear.
```



Wumpus

```
1526 DATA"You've fallen into a BOTTOMLESS","PIT - one life lost -.
1528 DATA"Three ZOMBIES amble towards","you.Watch out!
1530 DATA"A creepy GIANT-SPIDER scuttles","towards you.
1532 DATA"I smell a Wumpus!","A Wumpus is nearby.
1534 DATA"You've found the WUMPUS.","It's starting to wake up.
1536 DATA"An old WIZARD with an","Apple approaches.
1538 DATA"Some small green ELVES","are playing here.
1540 DATA"A small and heavy box","lies open here.
1542 DATA"A small,heavy,open","and empty box is here.
1544 DATA"You are at the TELEPORT station in","the land of the Wild
 Wumpus.
1546 DATA"Nothing of particular interest is","here.A wolf howls in
the hills.
1548 DATA"Several corpses litter the ground.","A blue-headed Galah
calls you.
1550 DATA"You feel a sudden breeze.","A bottomless pit is nearby.
1552 DATA"A big fat WOMBAT crawls to a bush","As he nears you hear
him fart!
1554 DATA"All around you is mushy swamp.","Better get your wellies
on!
1559 REM-----------------------------------------------------------
---------
```



us Hunt

```
1560 FORT=ØTO9:READX$:E$(T)=X$:NEXT
1562 DATA"a shiney sword glistens in the box","a black disk lies in
 the box
1564 DATA"a curved dagger falls to the ground","an unusual key ratt
les.
1566 DATA"a bag of marbles is in it","3 bags of dry roasted peanuts
 appear
1568 DATA"a tin of Superbat Repellent is in it","32 gold coins clat
ter
1570 DATA"an armour plate creaks","a dose of Wumpus Sleep Inducer
1579 REM----------
----------
1580 FORT=46368TO46375:READB:POKET,B:NEXT
1582 DATA63,63,63,63,63,63,63,63
1584 FORT=46376TO46383:READB:POKET,B:NEXT
1586 DATA63,33,33,33,33,33,33,63
1588 FORT=46424TO46431:READB:POKET,B:NEXT
1590 DATA63,33,33,45,45,33,33,63
1599 REM----------
----------
1600 FORT=ØTO7:READY$,B,C,D:P1$(T)=Y$:P1%(T)=B:K$(T)=Y$:W1(T)=C:P2%
(T)=D:NEXT
```

```
1602 DATA"Swords.............",1,1,30
1604 DATA"Daggers............",2,.4,10
1606 DATA"Armour level.......",4,1,25
1608 DATA"Keys...............",3,.15,10
1610 DATA"Marbles............",2,.15,2
1612 DATA"Superbat Repellent...",2,.15,20
1614 DATA"Black disks........",2,.15,5
1616 DATA"Doses of W.S.I.....",2,.2,40
1618 E$(8)="Peanuts............":K$(9)="Gold coins..........":P1
%(8)=1
1620 P1%(9)=10:W1(8)=.01:W1(9)=.5:P2%(8)=1:P2%(9)=1
1639 REM----------
----------
1640 FORT=ØTO9:READX$:L1$(T)=X$:NEXT
1642 DATABANG,POW,OWWWW!,,ARRGGHHH!,OWCH!,,CRACK,GALAH,CRASHHHH!
1699 REM----------
----------
1700 CLS:PLOT11,3,10:PLOT11,4,10:PLOT13,3,3:INK2:PA^ERØ:PLOT13,4,3
1702 PLOT14,3,"WUMPUS HUNT":PLOT14,4,"WUMPUS HUNT
1704 PLOT5,8,"A program for GAMES COMPUTING"
1706 WAIT100:SHOOT
1708 FORT=14TO24
1710 PLOT1,3,5:PLOT1,4,5:WAIT99:SHOOT:NEXT
1712 PLOT13,3,6:PLOT13,4,6:PLOT4,8,5
1714 PLOT14,3,"WUMPUS HUNT":PLOT14,4,"WUMPUS HUNT"
1716 T1$="040810040810040202021004"
1718 FORT=1TO24STEP2:T1=VAL(MID$(T1$,T,2))
1720 MUSIC1,3,T1,Ø:PLAY1,Ø,1,1000:WAIT90-T*3:NEXT:WAIT50
1799 REM----------
----------
1800 PING:PLOT9,12,"SELECT:Ø to 9,Ø=easy-":GETI$
1802 B=VAL(I$):U1=Ø:U%=Ø:Y1=Ø:Y2=Ø:S%=Ø
1804 S$=STR$(18-B):W$=STR$(8+B):F$=STR$(18-B):G=Ø:G$="Ø":S=18-B:W=7
+B:F=18-B
1806 O=Ø:O$="Ø":L%=3:X=Ø:U%=Ø:PLOT9,21,"PLEASE WAIT A MINUTE":PLOT7
,21,3
1808 PLOT8,21,12:FORT=ØTO19:FORR=ØTO19:A1(T,R,Ø)=29:NEXT:NEXT
1810 FORT=ØTO19:FORR=ØTO19:A1(T,R,1)=Ø:NEXT:NEXT
1812 FORT=ØTO7:P%(T)=Ø:P$(T)="Ø":NEXT
1814 FORT=ØTO19:FORD=ØTO19:FORR=ØTO9:B%(T,D,R)=Ø:NEXT:NEXT:NEXT
1816 XX=FRE(Ø):CALL#E6CA
1829 REM----------
----------
1830 CLS:ZZ=23:GOSUB2000
1831 PRINTCHR$(129)"W      W      W      W      W      W      W"
1832 FORT=1TOINT((B+2)/2):ZZ=19:GOSUB2000:NEXT
1833 PRINTCHR$(130)"U      U      U      U      U      U      U"
1834 ZZ=20:GOSUB2000:X%=P1+2:Y%=P2+1:O%=X%:R%=Y%
1835 PRINTCHR$(131)"M      M      M      M      M      M      M"
1836 FORT=1TOB+5:ZZ=17:GOSUB2000:NEXT
1837 PRINTCHR$(132)"P      P      P      P      P      P      P"
1838 FORT=1TO14-B:ZZ=2:GOSUB20^Ø:NEXT
1839 PRINTCHR$(133)"U      U      U      U      U      U      U"
1840 FORT=1TOB+5:ZZ=16:GOSUB2000:NEXT
1841 PRINTCHR$(134)"S      S      S      S      S      S      S"
1842 FORT=1TO30:ZZ=Ø:GOSUB2000:NEXT
1843 PRINT
1844 FORT=1TO30:ZZ=1:GOSUB2000:NEXT
1845 PRINTCHR$(129)"H      H      H      H      H      H      H"
1846 FORT=1TOB+5:ZZ=21:GOSUB2000:NEXT
1847 PRINTCHR$(130)"U      U      U      U      U      U      U"
1848 FORT=1TO30:ZZ=4:X=1:GOSUB2000:NEXT
1849 PRINTCHR$(131)"N      N      N      N      N      N      N"
1850 FORT=1TO18-B:ZZ=3:GOSUB2000:NEXT
1851 PRINTCHR$(132)"T      T      T      T      T      T      T"
1852 FORT=1TOB+9:ZZ=18:GOSUB2000:NEXT
1853 PRINT
1854 FORT=1TO15:ZZ=15:GOSUB2000:NEXT
1855 PRINTCHR$(133)"B      B      B      B      B      B      B"
1856 FORT=1TOB+9:ZZ=20:GOSUB2000:NEXT
1857 PRINTCHR$(134)"Y      Y      Y      Y      Y      Y      Y"
1858 FORT=1TO5:ZZ=5:X=1:GOSUB2000:NEXT
1859 PRINT
1860 FORT=1TO5:ZZ=6:X=1:GOSUB2000:NEXT
1861 PRINTCHR$(129)"D      D      D      D      D      D      D"
1862 FORT=1TO5:ZZ=7:X=1:GOSUB2000:NEXT
1863 PRINTCHR$(130)".      .      .      .      .      .      ."
1864 FORT=1TO5:ZZ=8:X=1:GOSUB2000:NEXT
1865 PRINTCHR$(131)"T      T      T      T      T      T      T"
1866 FORT=1TO5:ZZ=9:X=1:GOSUB2000:NEXT
1867 PRINTCHR$(132)".      .      .      .      .      .      ."
1868 FORT=1TO5:ZZ=10:X=1:GOSUB2000:NEXT
1869 PRINTCHR$(133)"W      W      W      W      W      W      W"
1870 FORT=1TO3:ZZ=11:X=1:GOSUB2000:NEXT
1871 PRINTCHR$(134)"R      R      R      R      R      R      R"
1872 FORT=1TO5:ZZ=12:X=1:GOSUB2000:NEXT
1873 PRINTCHR$(129)"I      I      I      I      I      I      I"
1874 FORT=1TO5:ZZ=13:X=1:GOSUB2000:NEXT
1875 PRINTCHR$(130)"G      G      G      G      G      G      G"
1876 FORT=1TO3:ZZ=14:X=1:GOSUB2000:NEXT
1877 PRINTCHR$(131)"H      H      H      H      H      H      H"
1878 FORT=1TO5:ZZ=24:GOSUB2000:NEXT
1879 PRINTCHR$(132)"T      T      T      T      T      T      T"
1880 FORT=1TO5:ZZ=25:GOSUB2000:NEXT
1881 PRINTCHR$(145)
1882 FORT=1TO5:ZZ=32:GOSUB2000:NEXT
1883 PRINTCHR$(151)
1884 FORT=1TO25:ZZ=33:GOSUB2000:NEXT
1885 PRINTCHR$(150):CALL#E804:WAIT250:GOTO70
1999 REM----------
----------
2000 P1=INT(RND(1)*19):P2=INT(RND(1)*19)
2002 IFZZ=23THENK=22:GOTO2008
2004 IFZZ=19THENK=31:GOTO2008
2006 IFA1(P1,P2,Ø)=29THENA1(P1,P2,Ø)=ZZ:GOTO2016ELSE2000
2007 IFA1(P1,P2,Ø)=29THEN2008ELSE2008
2008 P1=INT(RND(1)*17+1):P2=INT(RND(1)*17+1)
2009 IFA1(P1,P2,Ø)=29THEN2010ELSE2008
2010 A1(P1,P2,Ø)=ZZ:A1(P1-1,P2-1,Ø)=K:A1(P1-1,P2,Ø)=K
2012 A1(P1-1,P2+1,Ø)=K:A1(P1,P2-1,Ø)=K:A1(P1,P2+1,Ø)=K
2014 A1(P1+1,P2-1,Ø)=K:A1(P1+1,P2,Ø)=K:A1(P1+1,P2+1,Ø)=K
2016 XX=FRE(""):IFX=1THEN2100ELSERETURN
2099 REM----------
----------
2100 IFZZ=4ORZZ=12THENB%(P1,P2,9)=1
2102 IFZZ=5THENB%(P1,P2,Ø)=1
2104 IFZZ=6THENB%(P1,P2,6)=1
2106 IFZZ=7THENB%(P1,P2,1)=1
2108 IFZZ=8THENB%(P1,P2,3)=1
2110 IFZZ=9THENB%(P1,P2,4)=1
2112 IFZZ=10THENB%(P1,P2,8)=1
2114 IFZZ=11THENB%(P1,P2,5)=1
2116 IFZZ=13THENB%(P1,P2,2)=1
2118 IFZZ=14THENB%(P1,P2,7)=1
2120 IFZZ=4THENA1(P1,P2,1)=1
2122 X=Ø:RETURN
```

VIDEO A-GO-GO

Beating The Burger

Video games fans up and down the country last month took part in a special one-off competition playing Mattel Electronics Burgertime game to win a two week holiday in the fun and sun city of Florida.

Called the 1983 Mattel Electrolympics any readers of comics like Roy of the Rovers, Tiger, Eagle, Battle and 2,000 AD had to fill in a quiz relating to computer and video games. From the entries, which came in hundreds, 20 finalists were picked to take part in a play-off on Mattel's great new video game, Burgertime. And after a battle of nerves, skill and stamina 12 year old Malcolm Dickenson from Stockton-on-Tees came out on top as the winner.

So some time in 1984 he and his parents will be winging their way to Florida in America for a glorious two weeks of fun and frolics. The competition culminated in a London based contest which coincided with the launch of Mattel's new Burgertime cartridge. The organisers thought it would give all finalists a fair chance to play out the contest on a game which was brand new, so that video games addicts couldn't spend hours practicing the game. Burgertime is also Mattel's most popular new game at the moment and if you want to take a look at it the price tag is £19.95 from most Mattel stockists.

As well as giving away this super holiday Mattel also handed out Intellivision and Intellivoice units for the second and third prizes. In addition to consolation prizes of hand-held games for the runners up. So everybody went away with something in their hands! And on top of all that the finalists and their parents were taken off to have a huge hamburger meal complete with 'Burgertime' cocktails in London's trendy Covent Garden.

New Keyboard Comes At Last

More news on the Mattel front is that the firm's newest addition to its range of hardware is now on sale in a few shops.

The long-awaited Lucky Computer Keyboard is actually in production after what must now be a two year delay since the original announcement! Although *Games Computing* hasn't yet seen and tried out one of these we know that it will transform your Intellivision into a computer proper. This means that you will now be able to play not only video games on your machine, but also try out your hidden talents as computer programmers which was impossible until now. Maybe you are a brilliant computer games programmer and will reveal your skills when you plug your *Lucky Computer Keyboard* into your Intellivision?

It's now on sale for certain in London's 'shop for top people' Harrods (the shop with the big front in Knightsbridge) and that great toy shop which usually has everything you want, Hamleys in Regent Street. Unfortunately, the price of the new keyboard is quite high at £89.95. So that means you will be paying out around £200 for a full computer, with the Intellivision unit selling for about £100. Another new member of the Mattel family is the Music Keyboard which will suit peiple with an ear for a good tune. This too plugs into the Intellivision and is now on sale from a few shops for £69.95.

After Christmas Mattel plans to ensure the new keyboards will be on sale in many more shops on the same scale as the firm now sells its other intellivision products. So keep your eye on your local supplier for the Lucky Computer Keyboards.

Beat the score

Idly playing away at one of Vectrex' new games somebody in our office notched up what has to be a record score on Mine Storm.

Chris 'video villain' Palmer not only scored over half a million points but also discovered screens that no-one knew existed. After having killed off hundred of aliens in the standard 25 screens he couldn't believe what was going on when he kept on going. They just kept coming and coming! All told he counted a total of 37 screens before it all got too much for him and he ran out of lives. With the excitement of it all. Not before time either!

But not content with his word on the subject we decided to capture his score on film for ever, and that's what you see here! Out came the nearest camera with a roll of film inside and snap, snap we went, to keep the evidence.

But come on all you Mine Stormers

Looping

Runs on the Colecovision
Price £29.00

Here's a game that will keep you spinning topsy turvily all over your TV screen.

No matter what I did in Looping, my light aircraft kept crashing tragically into buildings, balloons, bullets and the runway. The first thing to do with this game is learn the mastery of manoeuvring your little blue plane around the screen and the obstacles plonked in your path by the meanie minded programmer who devised this game.

What's so confusing is that the joysick controller used for directional movement of the plane seems back to front. You have to pull the knob down to make the plane fly upwards and vice versa, while you are watching the plane from a sideways-on view. And that's why I kept crashing! Still, others who grabbed the joystick fared better than me so there's hope for everybody.

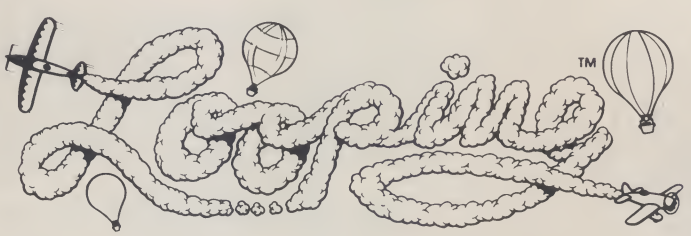
On the screen you'll see a gantry with its rocket, the runway and radar followed by some strategically placed buildings. To start the game you must make your plane take off, fly a loop and fire to destruct the rocket positioned at the left hand side of the screen. All this, of course, occurs after you have selected your skill level. While you are looping the loop all over the screen you must also shoot down blue balloons which fly through the sky. These craftily float up from the ground ready for you to bump into them — if any do, your plane will disappear with a big bang.

With a bit of luck and a lot of skill, having blown up the rocket you must do another loop and fly to the right of the screen. On the far right hand side is a gate (but you can't see it at first) and this automatically opens when you destroy the rocket. You must navigate your plane, which incidentally sounds just like a radio controlled aeroplane, through the gate. Now this is a very tricky operation indeed but after a few attempts it gets easier, if that's any consolation. And here's the really infuriating part of the game.

Once safely through the gate you are suddenly confronted with a maze which you must fly through, and it's only possible to travel through it with precision flying. Your best course of action is to follow the path with the least number of tortuous twists and turns.

But even if you do master the navigational controls you are still not out of danger. There are green drops (on the higher skill levels) to dodge and twinkling monsters to shoot before you can make a timely exit from the pipe maze and enter the final phase of the game. First of all you pass into an outer room and you have to dodge or shoot the bouncing balls which appear all over the place. If you can do that you must try and dock your craft against the oblong right hand side of the inner wall. Once that's done, that's it, the game's over. And you start the game all over again . . .

Looping *is* difficult to play, and the Colecovision joysticks don't help matters. The actual object of the game in terms of addictive quality is not very clear, because there is no incentive to play again. The scenario is the same (except if you try the higher levels) on each level, and once you have docked your plane you just go right back to the beginning. As one colleague put it: 'There just aren't enough things to blow up in this game!' A bit morbid perhaps, but it's what is so often appealing in an arcade game.



out there. I think it's time young Chris was taken down a peg or two as he's getting a bit big for his boots now. Why don't you send us your Mine Storm high scores and beat that wopping score of Chris? Send all your offerings to: MINE STORM HIGH-SCORES, Games Computing, 1 Golden Square, London W1R 3AB.

We'll try and get to them before Chris does because he'll probably try and destroy them in defence of his own record!

Pepper II

Runs on the Colevision
Price £29.00

Here's a great maze game which is simply and sufficiently different from the popular game of Pacman but is just as addictive to play.

Instead of darting you way round the paths of a maze you move your Pepper angel along the walls, or tracks, which make up the maze. When you have chosen your skill level you see the maze display on the screen. At first it looks complicated but once you've read the instruction booklet thoroughly and died a few times on the screen during your first attempts all will beome clear.

The maze is designed to form 'rooms' walled by the paths of the maze. The manual refers to the walls as zipper tracks because the graphics display looks a bit like the teeth of a zip. The fun and frustration of Pepper II comes when you start zipping up the tracks. As you move your Pepper angel along the tracks they will change colour, from blue to pink. This means that you are on your way to earning some points. When you have zipped all the tracks enclosing a room you earn some points, but be careful where your angel treads because if he backtracks over a path he's already covered he in effect unzips the track. And that means the angel has to tread that way again.

And while you're desparately trying to work all that out, there are other things to get in your way. Particularly the roving eyes. These perform the same function as the ghosts you find in the game Pacman. They run around the tracks of the maze and if your Pepper angel bumps into one of them the angel is instantly devoured. And you lose one of your five lives (if playing on skill level one) or three lives (if on any other of the skill levels).

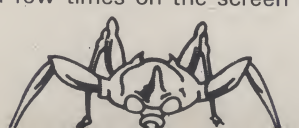
You'll notice that in some of the rooms of the maze are pitchforks. These are important because when you zip up one of these rooms it means that your angel's role is reversed and he can, for a few seconds, chase and eat the roving eyes — but you can only make a meal of them if they are coloured, and don't chance your luck too far because they have a nasty habit of reverting to their normal red colour just as you are about to eat one. Then *you* die instead.

Bonus points are up for grabs too, taking the form of safety pins or hammers. These are there for the taking if you enclose a room containing a bonus prize. In the centre of the maze is a room which sometimes contains a pitchfork and at other times contains a magic box. If you enclose this room and the magic box your angel turns into a pepper devil and you can once more eat up the roving eyes.

One particularly nasty character is the speedy green Zipper Ripper. He's only got one thing in mind and that's to unzip all the tracks round rooms that haven't been entirely enclosed. Another trick up his slimy green sleeve is that he can eliminate your pepper angel, if you are silly enough to let your angel get in contact with him.

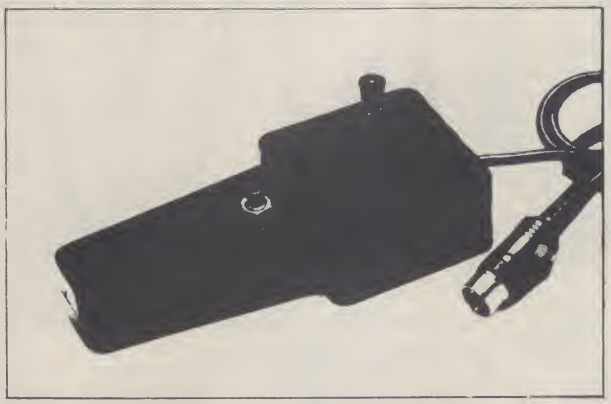
And if you don't like the maze you start off in, you can travel into three other shaped mazes. To do this you must move your Pepper angel out one of the four exits located at the top, bottom. right and left of each maze. This automatically brings you onto one of the alternative mazes.

All said and done I found this game in the Colevision' range of recently released cartridges to be the most fun. Mainly because it was much easier to grasp the controls of the game, it was a novel idea containing a lot on-screen action and added little game play incentives, as well as providing comparative value for money (as far as these cartridge prices go). Also the controls in this game didn't prove to be too awkward, although sometimes was, if anything, too responsive.



From the people who really know.....

JOYSTICKS



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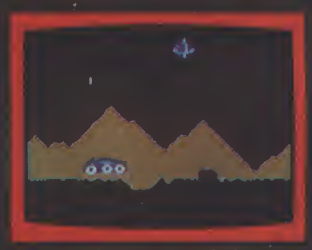

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PUZZLES

As this is the first issue that will actually appear during 1984, we have given this month's puzzle page a distinctly Orwellian flavour.

BOOK OF THE YEAR

Below is an unusual crossword. We've made it easier by giving you all the answers — except one. Hidden in the grid is a pattern. Once the pattern is discovered, you should then find the book of the year.

O	N	B	U	S	A	F	U	N	D	I	T	C	H
B	E	E	N	A	D	I	R	G	E	E	Y	E	S
S	T	O	N	I	N	G	D	A	N	O	F	F	A
C	H	E	E	S	E	E	D	G	E	Y	O	U	R
P	O	T	A	S	H	N	I	G	H	T	A	N	D

A BRIGHT COLD DAY IN APRIL

Below is part of a very long sequence. Carry on with it for as long as you like.

WEAR IS PEACE

Said Orwell in '1984'. Can you make SOFT into WARE in three moves, changing just one letter at a time? Each change of course must be a recognisable word.

SOFT ____ ____ ____ WARE

TELESCREEN

Two words hidden below might enable a games person to play . . .

PLRIOSGTRIANMG

WINSTON SMITH

Is the hero's name in '1984'. What name is missing in the following sequence?

D J F M A M J__ __ __ __ __?

DOUBLETHINK

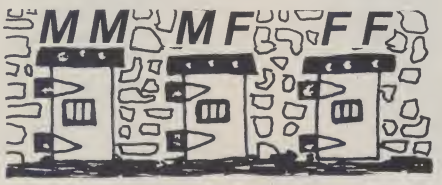
"What is the price of one?"
"Alf a quid."
"How much for ten?"
"That's a pound, guv."
"I'll have two hundred and nine then."
"That'll be thirty bob, guv!"
What was he buying?

FALKOVIA RULES

Meanwhile, back in darkest Oceania . . . . To keep up with his image of a cruel despot, the King of Falkovia recently imprisoned the three sons and three daughters of the good Duke Leslou, in the dungeons deep beneath the royal residence.

These dungeons consist of three cells, into which he placed the Duke's children. He labelled each cell as shown here — MM, MF, FF — M standing for male, F for female. Out of sheer spite however, although he put two children in each cell he made sure than in no cell did the label match the contents.

The King then challenged the Duke to devise where the 3 sons and three daughters were disposed in the cells. Successful deduction would lead to their release. By candlelight the Duke was allowed to open one door at a time and



release one child. Of course in the murky gloom he would not be able to see who was left in the cell. And, need we add, there was a rule of absolute silence in dungeon.

In one of his periodic fits of clemency he allowed the Duke one free go — thereafter one child would be executed every time a cell door was opened. The Duke knew as much as you now know. How many children survived?

Next month — more eccentricities at court and more puzzles.

SOLUTIONS

1: **Five Finger Exercise**
NM
(look at the bottom row of your typewriter/computer keyboard).

2: Peter Piper Picked a peck of pickled pepper.

3: 8 + 8 + 8 + 88 + 888 = 1000.

4: You don't really need an answer for that do you?

5: We came up with 28 games — though we may have missed some. These are they —
Space Invaders, Frogger, Pacman, Lunar Lander, Asteroids, War Lords, Star Trek, Hangman, Breakout, Blockade, Chess, Galazians, Madness, Planet of Death, Dragons Lair, Golf, Parachute, Pinball, Pentrator, Car Wars, Forth, Maths, Life, Yan, Pools, Enigma, Dybug, Quest.

7: This is one of those problems which look utterly simple once you know the answer. It has very little to do with any computer except the one you keep between your ears.

The answer is C.

There is no particular trick to it. He looks at the man in front, as he must, and sees a white hat. He knows that he is wearing either a white or a black hat. He then reasons that if I am wearing a white hat, the man behind will see two white hats and instantly deduce that he must have a black hat on. But the man behind is silent. He must therefore see a black and a white hat and be none the wiser. I am therefore wearing a black hat, says C, and is pardoned.

You are the last surviving defender of the planet GORGON. Your home planet is under attack by a fleet of aliens. The few survivors that are left depend on you!

When you run this program, a brief set of instructions will appear and it will wait for you to press the space bar. When you do the screen will clear and you will see the aliens together with your humble self at the bottom of the screen. To move your ship press 'Z' or 'X' and to fire press the space bar. If you manage to blast all the aliens before any of them reach the ground, another set of aliens will appear even closer to your ship.

When you are killed and your score is in the top 8 you will be asked to input your name. This can be anything up to 15 characters long (in fact the computer will not allow you to input anything longer) and when you do so the top 8 scores together with the scores will be displayed. Press the space bar for another game.

Important

When you type in this program replace all £ by a hash character. This is absolutely essential.

RUNdown

Lines	Action
Lines 1 to 3	REM statements.
Line 10	Selects TEXT mode and resets HIMEM.
Line 20	Defines arrays and print instructions.
Lines 30 to 40	Define variables.
Line 50	Calls the main loop (the game itself).
Lines 150 to 290	Main loop.
Lines 300 to 350	Scan keyboard and take appropriate action.
Lines 400 to 440	Update missile position and print it.
Lines 500 to 540	This procedure is called when an alien is hit.
Lines 810 to 900	Set up the screen.
Lines 1000 to 1160	Print the instructions (called at line 20).
Lines 1250 to 1510	Redefine various characters.
Line 1610	Die.
Lines 1630 to 1710	Hall of fame.
Lines 1940 to 2060	Your score is in top 8.

Conversion Clues

Because this program is entirely written in BASIC and Oric BASIC is fairly standard, it should not be too difficult to convert this program to run on other machines but here are a few hints.

The screen is 40 x 26

PLOT X,Y,A$ is equivalent to PRINT TAB(X,Y)A$ or PRINT AT X,Y,A$. Ignore music statement or replace them with appropriate sound commands. CHR$(4) is double height.

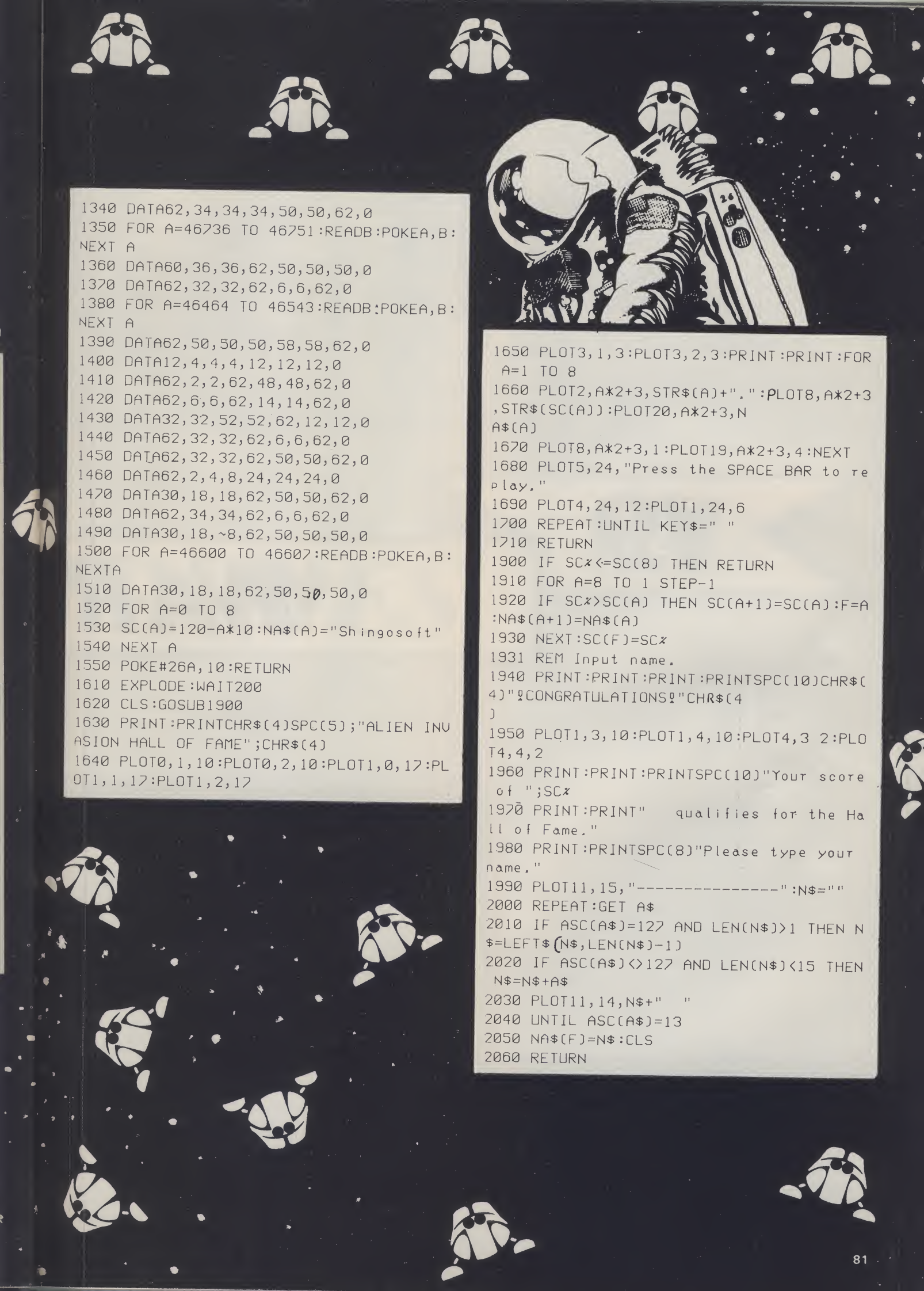
ALIEN DROPOUT

```
1 REM ALIEN INVASION V2
2 REM Copyright (C) 1983 Oct.
3 REM By Shingo Sugiura
4 :
10 TEXT:GRAB:HIMEM#B400
20 DIM AL(36),SC(9),NA$(9):GOSUB1000
30 HE=4:SC%=0:LE%=0
40 GOSUB700:GOSUB810
50 GOSUB150
60 IF DIE THEN GOSUB 1610:GOTO30
70 GOTO40
144 :
145 REM Main loop
146 :
150 A=4:REPEAT
160 A=A+1:IF A>36 THEN A=4
170 GOSUB300
180 IF B=1 THEN GOSUB 400
190 IF AL(A)=0 OR RND(1)>.85 THEN GOTO 2
80
200 PLOT A,AL(A)," ":AL(A)=AL(A)+1:PLOTA
,AL(A),"♀"
210 IF AL(A)>24 THEN DIE=TRUE
220 POKE616,0:POKE617,9:PRINTSC%
280 UNTIL DL%>32 OR DIE
290 RETURN
```

```
291 :
299 REM Scan keyboard
300 K$=KEY$
310 X%=X%+(K$="Z" AND X%>3)
320 X%=X%-(K$="X" AND X%<35)
330 IF K$=" " AN~ B=0 THEN MUSIC2,1,7,0:
PLAY2,0,1,500:BX%=X%+1:BY%=
23:B=1
340 PLOTX%,24,SP$
350 RETURN
399 REM Move missile
400 PLOTBX%,BY%," ":BY%=BY%-1
410 IF SCRN(BX%,BY%)<>32 THEN GOSUB 500
420 IF B=1 THEN PLOT BX%,BY%,"¦"
430 IF BY%<3 THEN PLOT BX%,BY%," ":B=0
440 RETURN
499 REM Hit an alien
500 PLOT BX%,BY%,"*":ZAP
510 B=0:AL(BX%)=0
520 DL%=DL%+1:PLOT BX%,BY%," "
530 SC%=SC%+5
540 RETURN
699 REM Initialise
700 X%=20:FLAG=0:DL%=0:SP$=" @ "
710 DIE=FALSE
800 RETURN
809 REM Set up the screen
810 CLS:HE=HE+2:LE%=LE%+1:IF HE%>=12 THE
N HE%=12
811 PLOT0, 5,17:PLOT0,26,18
```

ALIEN DROPOUT

```
820 FOR A=0TO1:PLOT0,A,20:PLOT38,A,23:NE
XT:PLOT1,0,1
830 PLOT2,0,"SCORE:":PLOT20,0,"HI-SCORE"
831 H$=RIGHT$(STR$(SC(1)),LEN(STR$(SC(1)
))-1):PLOT29,0,H$
840 L$=RIGHT$(STR$(LEX),LEN(STR$(LEX))-1
):PLOT2,1,"SCREEN"+L$
850 FOR A=4 TO 36:Y=RND(1)*HE+LEX*2:AL(A
)=Y:PLOTA,Y,"!":NEXT A
860 PLOT0,24,5:PLOTXX,24,SP$
870 FOR A=1TO2
880 FOR B=1TO12:MUSIC1,A,B,0:PLAY1,0,2,2
00:WAIT10
890 NEXTB,A
900 B=0:RETURN
999 REM Instructions
1000 CLS:PRINT
1010 PRINTCHR$(4)SPC(10);"ALIEN INVASION
";CHR$(4)
1020 PLOT1,1,10:PLOT1,2,10:PLOT0,1,CHR$(
5):PLOT0,2,CHR$(5)
1030 PRINT:PRINT:PRINTSPC(9);"By Shingo
Sugiura":PLOT0,4,CHR$(1)
1040 PRINT:PRINT" You are the sole defen
der of planet"
1050 PRINT"GORGON. All the others have b
een"
1060 PRINT"destroyed in the previous att
acks"
1070 PRINT"by the aliens. They attack in
 rows so"
1080 PRINT"shooting them is easy, it's a
 matter"
1090 PRINT"of shooting them all."
1100 PRINT" You must defend your home pl
anet as"
1110 PRINT"long as possible as the survi
vors"
1120 PRINT"depend on you."
1130 PRINT:PRINT"CONTROLS:-":PLOT0,16,CH
R$(4)
1140 PRINT:PRINT"'Z'   ---   left."
1150 PRINT"'X'   ---   right."
1160 PRINT"SPACE ---   fire."
1170 FOR A=46344 TO 46351:READB:POKEA,B:
NEXT A
1180 DATA33,18,30,63,45,63,18,45
1190 FOR A=46592 TO 46599:READB:POKEA,B:
NEXT A
1200 DATA0,12,12,12,45,63,45,63
1210 FOR A=47072 TO 47079:READB:POKEA,B:
NEXT A
1220 DATA0,8,8,8,8,8,8,0
1230 PRINT:PRINTSPC(5);CHR$(140);"Press
the SPACE BAR to play.";:PL
OT0,21,CHR$(2)
1240 REPEAT:UNTIL KEY$=" "
1250 FOR A=46616 TO 46623:READB:POKEA,B:
NEXT A
1260 DATA62,32,32,32,48,48,62,0
1270 FOR A=46632 TO 46639:READB:POKEA,B:
NEXTA
1280 DATA62,32,32,62,48,48,62,0
1290 FOR A=46656 TO 46671:READB:POKEA,B:
NEXT A
1300 DATA34,34,34,62,50,50,50,0
1310 DATA8,8,8,8,24,24,24,0
1320 FOR A=46704 TO 46719:READB:POKEA,B:
NEXT A
1330 DATA62,34,34,34,50,50,50,0
```



```
1340 DATA62,34,34,34,50,50,62,0
1350 FOR A=46736 TO 46751:READB:POKEA,B:
NEXT A
1360 DATA60,36,36,62,50,50,50,0
1370 DATA62,32,32,62,6,6,62,0
1380 FOR A=46464 TO 46543:READB:POKEA,B:
NEXT A
1390 DATA62,50,50,50,58,58,62,0
1400 DATA12,4,4,4,12,12,12,0
1410 DATA62,2,2,62,48,48,62,0
1420 DATA62,6,6,62,14,14,62,0
1430 DATA32,32,52,52,62,12,12,0
1440 DATA62,32,32,62,6,6,62,0
1450 DATA62,32,32,62,50,50,62,0
1460 DATA62,2,4,8,24,24,24,0
1470 DATA30,18,18,62,50,50,62,0
1480 DATA62,34,34,62,6,6,62,0
1490 DATA30,18,~8,62,50,50,50,0
1500 FOR A=46600 TO 46607:READB:POKEA,B:
NEXTA
1510 DATA30,18,18,62,50,50,50,0
1520 FOR A=0 TO 8
1530 SC(A)=120-A*10:NA$(A)="Shingosoft"
1540 NEXT A
1550 POKE#26A,10:RETURN
1610 EXPLODE:WAIT200
1620 CLS:GOSUB1900
1630 PRINT:PRINTCHR$(4)SPC(5);"ALIEN INV
ASION HALL OF FAME";CHR$(4)
1640 PLOT0,1,10:PLOT0,2,10:PLOT1,0,17:PL
OT1,1,17:PLOT1,2,17
```

```
1650 PLOT3,1,3:PLOT3,2,3:PRINT:PRINT:FOR
 A=1 TO 8
1660 PLOT2,A*2+3,STR$(A)+".":PLOT8,A*2+3
,STR$(SC(A)):PLOT20,A*2+3,N
A$(A)
1670 PLOT8,A*2+3,1:PLOT19,A*2+3,4:NEXT
1680 PLOT5,24,"Press the SPACE BAR to re
play."
1690 PLOT4,24,12:PLOT1,24,6
1700 REPEAT:UNTIL KEY$=" "
1710 RETURN
1900 IF SCx<=SC(8) THEN RETURN
1910 FOR A=8 TO 1 STEP-1
1920 IF SCx>SC(A) THEN SC(A+1)=SC(A):F=A
:NA$(A+1)=NA$(A)
1930 NEXT:SC(F)=SCx
1931 REM Input name.
1940 PRINT:PRINT:PRINT:PRINTSPC(10)CHR$(
4)"!CONGRATULATIONS!"CHR$(4
)
1950 PLOT1,3,10:PLOT1,4,10:PLOT4,3 2:PLO
T4,4,2
1960 PRINT:PRINT:PRINTSPC(10)"Your score
 of ";SCx
1970 PRINT:PRINT"   qualifies for the Ha
ll of Fame."
1980 PRINT:PRINTSPC(8)"Please type your
name."
1990 PLOT11,15,"---------------":N$=""
2000 REPEAT:GET A$
2010 IF ASC(A$)=127 AND LEN(N$)>1 THEN N
$=LEFT$(N$,LEN(N$)-1)
2020 IF ASC(A$)<>127 AND LEN(N$)<15 THEN
 N$=N$+A$
2030 PLOT11,14,N$+"  "
2040 UNTIL ASC(A$)=13
2050 NA$(F)=N$:CLS
2060 RETURN
```

19 WAR

From Rome To Ram — Setting The Scene

In the first article in this series I introduced you to the historical roots of computer wargaming. In this article I will be looking at some of the wider questions of wargaming on computers.

First, I must define the subject: what is a wargame? This is going to be controversial, so you will have to just accept what I say — after all, I'm the one writing this series! A wargame is a simulation of a conflict which has its origins in international politics. I thus exclude any simulation of a conflict between individuals, which I would put under the heading of role-playing. However, I am not excluding conflicts that stop short of shooting — such as our present Cold War. Others will disagree with me, but the categories I choose are not really important: what I will be discussing can be applied to a whole range of simulation games.

Why should we bother to computerise a wargame? After all, don't board games cover the files adequately? In. traditional design there are features that occur repeatedly, and a look at these will show up the advantages and disadvantages of using a computer. I have identified four items to be considered. First, there is usually a board or playing area; this is divided into different terrains, and, in the case of the board game, is usually gridded with a square or hexagon pattern. Next, there are pieces representing military units of various sizes and strengths. There are rules governing the movement of the pieces on the plating area. And there are rules governing conflict between the units of each player.

The strengths are usually indicated by numbers — so this is one area that the computer can work in. In fact this is an area where computers can improve on traditional wargames. There have always been compromises made on the recording of unit strengths to ensure that wargames don't become boring accounting excercises. With a computer it is possible to make step losses to units on a very fine scale — it would be possible to make man-by-man reductions to an army division if you so wanted!

With movement the advantage is less, but is still in the computer's favour. In board games the compromise is usually made of placing a grid over the play area to govern movement. This means that movement is always approximate. The computer can calculate distances much more accurately, and so can allow for more complex movement rules.

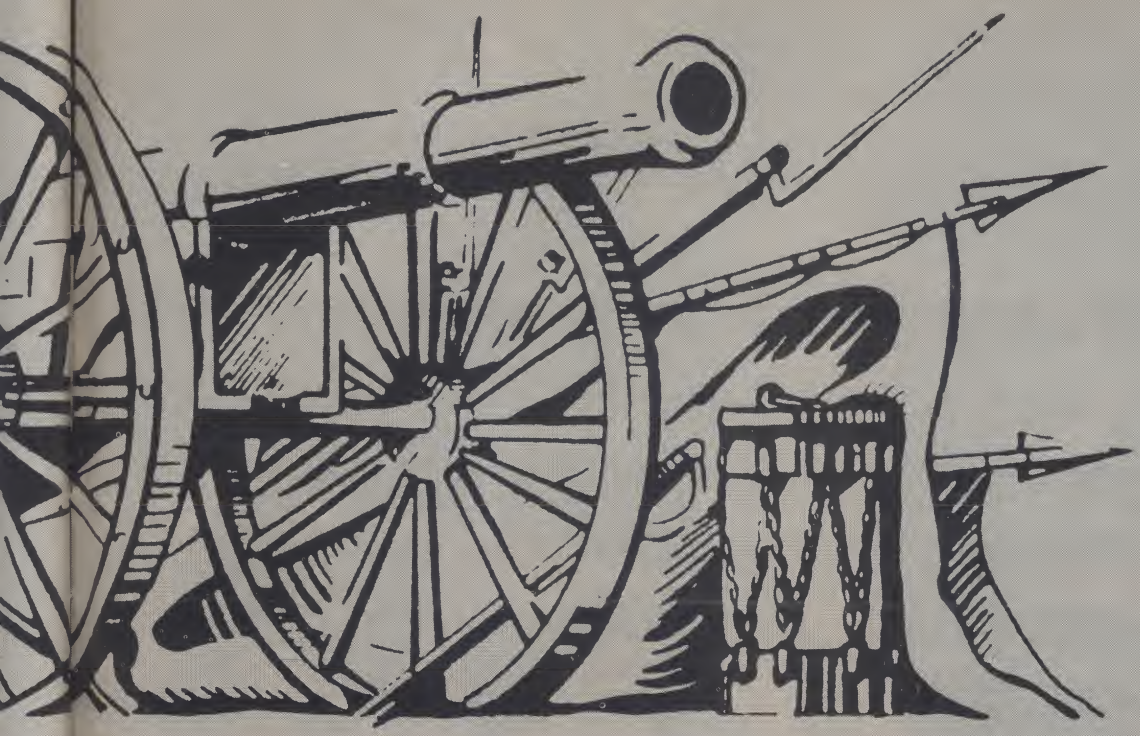
Off To Play

Combat is traditionally carried out by referring to a cross matrix of a die roll and an odds ratio of attack strength to defence strength (see figure. 1). This works fine with low numbers, but when large combat values are involved it can break down. For instance 300 attack factors against 10 defence factors would be 3-1; but 29 to 10 would be 2-1, a disaproportionate drop. If given an effective formula then 2.9-1 would be no problem for a computer.

That leaves us with the play area, and this is the big weakness of the computer. Most board games offer an area of about 50 cms by 50 cms, and over 5000 positions in that area. Some board games are over 100 cms by 100 cms, with about 25000 positions. Figure games are played in areas about 200 cms by 200 cms. A large TV screen offers about 40 cms by 30 cms, and an average home computer offers a useable on-screen area of about 800 positions. Of course, it is possible to split the play area so that only part is shown on screen at any one time, but this is a compromise.

There is one final area where the computer has an advantage over traditional wargames, and that is the 'fog of war' problem. In reality commanders have never had full information of their troops — units have been out of position, understrength, or close to breaking or to mutiny without the commander knowing. In traditional games this is virtually impossible to simulate because the commander has an eye-in-the-sky view of the battlefield. In computer games the computer is keeping records of unit strength, positions, etc, and it is possible for it to report somewhat falsely . . .

So those are the reasons for putting a wargame on the computer. But how to start going about it? First, you must choose your subject. There is a wide



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range of possible subjects — mankind has been mixing it since there has been a mankind, and it is possible to see the situation continuning into the future.

Next, think about the scale of the game. You will have to consider the size of play area for the simulation, the size and number of fighting units in the game, and the timescale. These factors interrelate: World War II fought in 10 minute turns with platoon-strength units may prove a little long-winded and tedious. Another related problem here is the actual time it takes to play the game. To expect someone to sit down to play a game for up to two hours without a gamesave facility is just about reasonable. To expect a person to sit and play for 200 hours, with or without gamesave facility, is perhaps stretching it.

Other problems to be faced are: whether this is to be a game for one player, two players, or more; whether the computer is to be a moderator for the game or an active opponent; whether the computer is to be used as a backup to a board game or as the source for the entire game.

Often the subject matter chosen will dictate how the game is to be set up, and this brings me to me last big rule of wargame design: research. By this I don't just mean that to should research your subject area, although this is important. Look also at the best ways to represent the battles on the computer. Find the best formula to calculate battle results, movement, etc. Remember, you are translating reality into a silicon chip. The magic occurs when the person who plays the game loses sight of that chip and gains a glimpse of reality.

Next Month: The problems of randomness and data storage.

Military Review: 'Empire', for the Dragon 32, pulished by Shards Software, price £6.95

This is a game for one player against a computer opponent (with a smattering of passive opponents thrown in). The basis of the game is that old board game favourite, Risk.

The game is played on a map of the World divided into thirty-nine provinces. At the start of the game thirteen of the provinces are neutral. You and the computer then alternately take provinces until all 39 are allocated.

Play proceeds in a series of turns, each turn following the same pattern. First computer (playing the Dragon Empire) places extra armies in its provinces. Then it attacks neighbouring provinces until it runs out of armies, runs out of provinces to attack, or is defeated in one of its attacks. Then it's our turn to place extra armies and carry out your attacks. The Neutrals never make attacks, although they do gain extra armies.

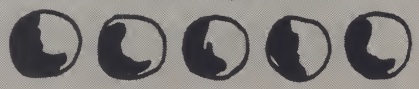
An attack is carried out by giving province from which the attack is to be made and the province to be attacked. The battle will then proceed, each side losing forces until one side has been elimintaed. The winning side can then move armies into the captures province. You can 'domino attack', that is attack a province, move in, attack again from the captures province, move in, until you run out of armies.

The computer wins by eliminating you from the game, you win by eliminating the computer. It is possible for either player to win without conquering the whole world as neutral donot affect victory.

The game plays very well, and can be completed in under one hour. The graphics are excellent: there is a map of the World and six area maps of each of the continents. A generous overlap on each of the area maps that you never suffer General Slim's problem of fighting battles on the edge of maps. There is sufficient noise to add to the excitement of play without making it sound like Pacman meets World War II.

There are nine levels of play, which dictate the attack strength of the Dragon Empire. They vary from 1, a doddle, through 9, a slaughter. Level 6 or 7 offers a very reasonable game with a strong opponent.

I can recommend this game as a good introduction to computer wargaming. It isn't so complex that it will put off the casual player, nor so simple that it will quickly pall. I have only one complaint: this game would work well on several computers, why has it only been published for the Dragon?



Alien

Runs on Oric

By D T Wright

They're back. A new evil race of aliens have taken it upon themselves to wipe out your city. You control the obligatory missile-launcher. With this you must wipe out the alien hordes. Your eyes anxiously look towards the sky, where you expect to see the foe any second now. Suddenly the sky is full of the most horrible, fearful and frightening creatures you have ever seen. The Alien Scouts have arrived. . . .

Firstly a wave Alien Scouts rapidly drop towards the city. If they land the city is doomed. You must act quickly.

Then the Mega-Bombs fall from the immense, unseen Command ship. Some hang; suspended by invisible Nyocrikle cords, waiting to fall. Others continue to fall, the ever-increasing noise designed to irritate rarely fails. Quick, help! BANG, a few parts of the city are destroyed.

And the third wave. . . You hear an evil noise, throbbing and threatening. The Saucers hurtle across the screen. A truly awesome sight. Seemingly harmless, their true intent — to supply the others, dawns upon you (usually too late). Although the city isn't likely to be damaged, your defence couldn't survive the onslaught if the extra supplies were received.

If, by a remarkable feat of skill you survive all three waves; you get an extra life and bonus points. Then you must face them again, in a more powerful form.

Alien Scouts should work on a 16K Oric if the command GRAB is used and memory is cleared before starting.

Full instructions are included in the program. There are only four keys to use; left, right, fire, and pause. These can be redefined within the program. The high score is displayed all the time with the name of the holder of it. Five skill levels are alreay incorporated into the program, but more easily be.

If you find this program too easily beaten, alter the numbers following the variables Y and E in the IF. . . THEN loops in the second and third waves. Raising the variable E increases the number of aliens which you must destroy before going onto the next wave. Lowering the variable Y lowers the number of aliens needed to kill you.

If you find that you cannot enter a line without it overflowing the two lines maximum, then enter the PRINT statements as? (question mark).

Rundown

Lines 8-70	Initialisation of control keys. Various jumps to: redefine characters, reset variables, instructions and the game.
Lines 100-110	Control section, where inputs are processed. Movement and pause inputs are handled here. A jump to the firing routine is activated by the fire key.
Lines 200-213	The first wave of aliens. Various jumps to: control section, aliens landed section, sheet cleared section, set up display section.
Lines 300-322	The second wave of Aliens. various jumps to: life lost section, control section, set up display, sheet cleared section.
Lines 400-413	The third wave of aliens. Various jumps to: life lost section, sheet cleared section, control section, set up display section.
Lines 1000-1032	Firing routine.

Lines 2000-2090	Life lost section. Checks number of lives left. If you have no lives left, your score is checked against the high score. If this is greater than the high score you are asked to input your name.
Lines 3000-3100	Sheet cleared section. A bonus is calculated and you are given it.
Lines 4000-4130	Aliens landed section. This occurs when an alien scout lands. The game is over and a jump to the life section occurs.
Lines 5000-5340	Set up display section. This produces the display complete with stars, score, high score, name of the high score holder, sheet number and different colour aliens.
Lines 6000-6060	City destroyed section. This occurs when all of the cute red city has been destroyed.
Lines 7000-7120	Cleared three waves section. This section is jumped to when all three waves have been cleared. A bonus is calculated and added to your points. An extra life is awarded. Then a jump to the first screen occurs.
Lines 10000-10230	Instructions section. This requires you to input the skill level and checks if the present keyboard controls are O.K. If not, you have to redefine them. Jumps to the start of the program.
Lines 15000-15260	Redefine characters section.
Lines 20000-20030	Reset variables section. Jumpt to start of program.

Conversion Clues

This program is written entirely in BASIC so that it is easy to convert; and so that it can be modified or even improved.

A few points to remember about the Oric are:

It has a screen sixe of 38 columns by 26 lines.

There are 4 predefined sound commands; ZAP, SHOOT, EXPLODE and PING. The character is formed in a 6 by 8 grid (not 8 by 8 as in others).

PRINT CHR (17) toggles the cursor on/off (same as CTRL Q).

PRINT CHR (6) toggles the keyboard click on/off (same as CTRL F).

A—FRE ('''') forces variable garbage collection.

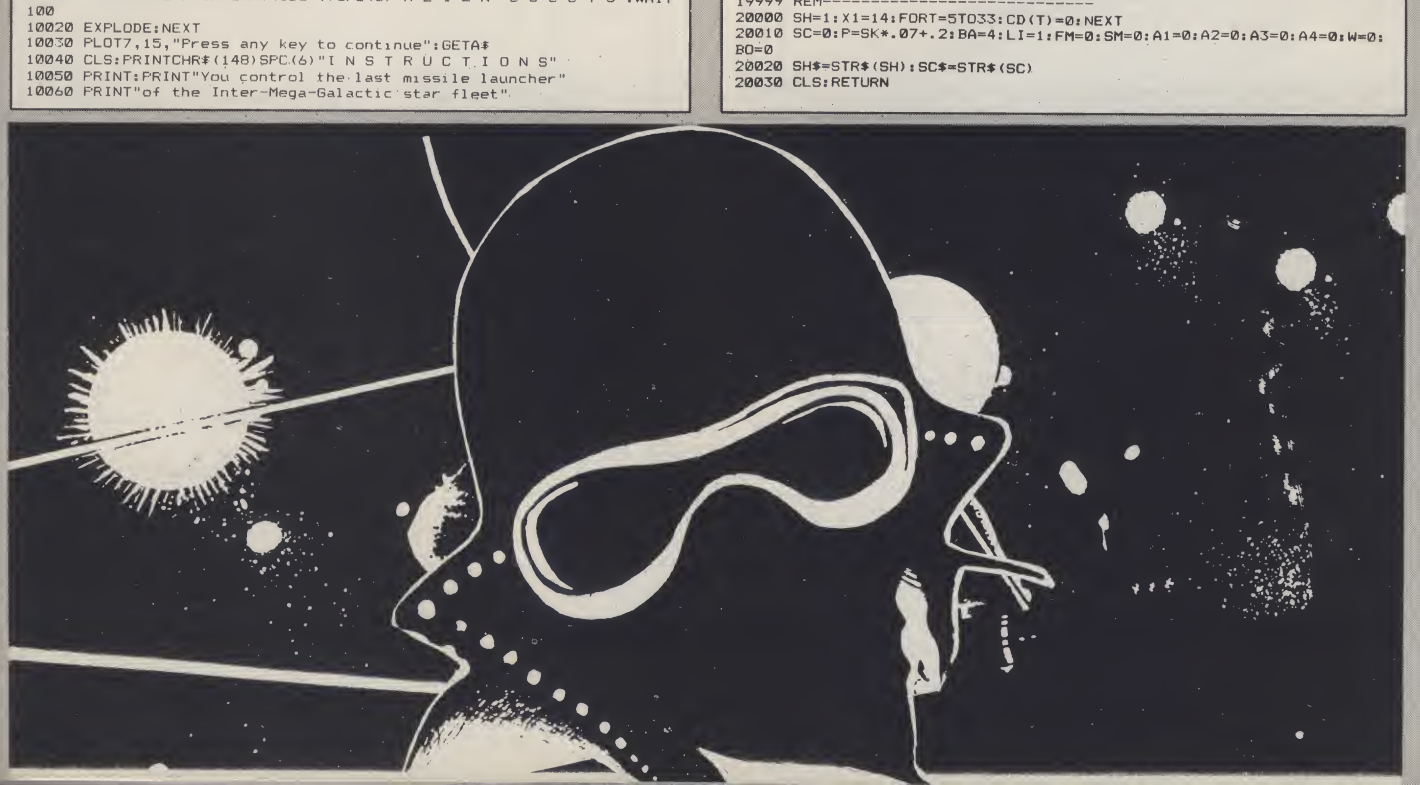
When a plot command is followed by a number, the number is a serial attribute which controls the screen. Numbers from 0 to 7 alter the foreground colour for that point to the end of that line. Numbers from 8 to 15 change the character set that is printed (for example, the number 12 represents single height flashing characters). Numbers from 16 to 23 alter the background colour for that point to the end of the line.

```
8 REM ------------------------------
9 REM |                            |
10 REM|    A L I E N  S C O U T S  |
11 REM|                            |
12 REM|                            |
13 REM|         By D.T.Wright      |
14 REM|                            |
15 REM------------------------------
20 CLEAR
30 DIMCD(37):L$="1":R$="2":F$="\":N$="The Aliens":POKE48035,0:HS$="
00000"
33 FORI=1TO12:POKE48013+I,ASC(MID$("ALIEN SCOUTS",I,1)):NEXT
36 PRINTCHR$(6)CHR$(17):P$="P"
40 GOSUB10000
50 IFQQ=0THENGOSUB15000
60 QQ=1
65 GOSUB20000
70 GOTO200
97 REM-------------------------------
98 REM            CONTROL
99 REM-------------------------------
100 IFI$=R$THENX2=X1:X1=X1+1:IFX1=38THENX1=37
101 IFI$=L$THENX2=X1:X1=X1-1:IFX1=1THENX1=2
102 IFI$=F$THENGOSUB1000
103 IFI$=P$THENGETI$:GOTO106
104 IFI$<>F$ANDI$<>L$ANDI$<>R$ANDI$<>P$THENRETURN
105 IFSCRN(X1,20)<>32ORSCRN(X1,21)<>32THEN2000
106 PLOTX1,20,"(":PLOTX1,21,")"
107 PLOTX2,20," "
108 PLOTX2,21," "
109 PLOT10,24,SC$
110 RETURN
197 REM-------------------------------
198 REM          ALIEN SCOUTS
199 REM-------------------------------
200 CLS:PLOT10,13,14:PLOT10,14,14
201 PLOT13,13,"Alien Scouts"
202 PLOT13,14,"Alien Scouts"
203 WAIT400:EXPLODE:X=19
204 GOSUB5000
206 BA=BA+P
207 IFA1=0THENPLOT10,INT(BA),CHR$(36):PLOT10,INT(BA-1)," "
208 IFA2=0THENPLOT15,INT(BA),CHR$(36):PLOT15,INT(BA-1)," "
209 IFA3=0THENPLOT20,INT(BA),CHR$(36):PLOT20,INT(BA-1)," "
210 IFA4=0THENPLOT25,INT(BA),CHR$(36):PLOT25,INT(BA-1)," "
211 IFINT(BA)>=22THENGOSUB4000
212 IFA1=1ANDA2=1ANDA3=1ANDA4=1THENGOSUB3000:GOTO300
213 I$=KEY$:IFI$=""THEN206ELSEGOSUB100:GOTO206
297 REM-------------------------------
298 REM          MEGA-BOMBS
299 REM-------------------------------
300 CLS:PLOT10,13,14:PLOT10,14,14
301 PLOT14,13,"Mega-Bombs"
302 PLOT14,14,"Mega-Bombs":Y=0
303 WAIT400:EXPLODE:X=18:GOSUB5000:I=316
304 ZZ=INT(RND(1)*28+6):Y=Y+1:IFZZ=X1-1ORZZ=X1+1ORZZ=X1+6THENI=315:
GOTO306
305 GOTO320
306 FORZ=8TO22STEPSK/2
307 PLOTZZ,Z,"*":PLOTZZ,Z-SK/2," "
308 MUSIC1,2,3,0:MUSIC2,4,Z/2,0:MUSIC3,3,10,0
309 SOUND4,5,0:PLAY7,0,1,1000
310 IFY>45-SK*2THENGOSUB2000
311 IFE>7+SKTHENGOSUB3000:GOTO400
312 IFZ>21THENSC=SC-15:SC$=STR$(SC):PLOTZZ,Z," ":PLOT10,24,SC$
313 IFZ>21THENCD(ZZ)=1:Y=Y-1:PLOTZZ,Z+1," ":CD(ZZ-1)=1
314 GOTOI
315 WAIT10-SK:NEXT:PLAY0,0,0,0:I=316:GOTO304
316 I$=KEY$:IFI$=""THEN315ELSEGOSUB100:GOTO304
320 ZX=(RND(1)*7)+(SK/3)
321 IFZX<=3.9THEN322ELSE306
322 I$=KEY$:IFI$=""THEN306ELSEGOSUB100:GOTO304
397 REM-------------------------------
398 REM             SAUCERS
399 REM-------------------------------
400 CLS:PLOT10,13,14:PLOT10,14,14
401 PLOT15,13,"Saucers"
402 PLOT15,14,"Saucers"
403 WAIT400:EXPLODE:X=22
404 GOSUB5000:Y=0
405 Z=INT(RND(1)*13+2):Y=Y+1
406 FORZZ=8TO36STEP1.5+SK
407 PLOTZZ,Z,"&":PLOTZZ-(1.5+SK),Z," "
408 MUSIC3,2,6,0:PLAY2,0,1,1000
409 WAIT10
410 IFY>12-SKTHENGOSUB2000
411 IFE>12+SKTHENGOSUB3000:GOTO7000
412 I$=KEY$:IFI$=""THEN413ELSEGOSUB100
413 NEXT:PLOT34,Z,"  ":GOTO405
997 REM-------------------------------
998 REM        FIRING ROUTINE
999 REM-------------------------------
1000 ZAP:FORT=20TO1STEP-1
1001 PLOTX1,T,"'":PLOTX1,T+1," "
1002 IFSCRN(X1,T-1)=36ORSCRN(X1,T)=36THEN1010
1003 IFSCRN(X1,T-1)=38THEN1020
1004 IFSCRN(X1,T-1)=42THEN1030
1005 SOUND5,3,0:MUSIC1,2,5,0:PLAY1,2,2,1000
1006 NEXT:PLOTX1,1," ":RETURN
1010 SC=SC+SH*10:SC$=STR$(SC)
1011 IFX1=10THENA1=1
1012 IFX1=15THENA2=1
1013 IFX1=20THENA3=1
1014 IFX1=25THENA4=1
1015 EXPLODE
1016 PLOTX1,T-1," ":PLOTX1,T," ":RETURN
1020 SC=SC+SH*20:SC$=STR$(SC)
1021 EXPLODE:E=E+1:Y=Y-1
1022 PLOTX1,T-1," ":PLOTX1,T," ":RETURN
1030 SC=SC+SH*15:SC$=STR$(SC)
1031 EXPLODE:E=E+1:Y=Y-1
1032 PLOTX1,T-1," ":PLOTX1,T," ":RETURN
1997 REM-------------------------------
1998 REM           LIFE LOST
1999 REM-------------------------------
2000 CLS:PRINTCHR$(150)SPC(7)"SERIOUS ANNOUNCEMENT":LI=LI-1
2010 PRINT:PRINT"Due to mis-management you have lost a life."
2020 PRINT:PRINTSPC(5)"You have ";LI;" lives left."
2030 IFLI=0THENPLOT14,15,"GAME OVER"ELSE2090
2035 WAIT300
2040 IFSC>HSTHENCLS:PRINTCHR$(149)SPC(10)"New high score"ELSE40
2050 PRINT:INPUT"Name(max.13 characters)=";N$
2060 IFLEN(N$)>13THENPRINT"....naughty":PING:WAIT20:GOTO2040
2070 PLOT5,20,6:PLOT6,20,"Press any key to continue....":GETA$
2075 HS$=SC$
2080 GOTO40
2090 PLOT14,15,"Get ready":WAIT300:BA=4:GOTO200
2997 REM-------------------------------
2998 REM         SHEET CLEARED
2999 REM-------------------------------
3000 CLS:PLOT10,15,10:PLOT10,16,10
3010 PLOT12,15,"Sheet":PLOT12,16,"Sheet"
3020 PLOT18,15,"Cleared":PLOT18,16,"Cleared"
3030 BO=SH*50+INT(RND(1)*50):SC=SC+BO:SC$=STR$(SC):BO$=STR$(BO)
3040 PLOT13,20,"Bonus :":PLOT20,20,BO$
3050 IFSC>3000ANDFM=0THENLI=LI+1:FM=1
3060 IFSC>15000ANDSM=0THENLI=LI+1:SM=1
3070 A1=0:A2=0:A3=0:A4=0:X1=14
3080 SH=SH+1:E=0:SH$=STR$(SH)
3090 PLOT6,25,"Press any key to continue":GETA$
3100 RETURN
3997 REM-------------------------------
3998 REM         ALIENS LANDED
3999 REM-------------------------------
4000 CLS
4010 FORY=1TO10
4020 EXPLODE:WAIT15+Y*5
4030 NEXT
4040 PRINTCHR$(150)SPC(7)"SERIOUS ANNOUNCEMENT"
4050 PRINT:PRINT"The aliens have landed,the city is"
4060 PRINT"doomed,flee while you can."
4070 PRINT:PRINT:FORT=1TO10
4080 PRINTSPC(13)"GAME OVER"
4090 NEXT
4100 PRINT:PRINTCHR$(131)SPC(4)"Press any key to continue":EXPLODE:
GETA$
4110 PRINT:PRINTSPC(9)"Your score was ";SC
4115 WAIT300
4120 IFSC>HSTHEN2040
4130 GOTO40
4997 REM-------------------------------
4998 REM        SET UP DISPLAY
4999 REM-------------------------------
5000 CLS:SHOOT:WAIT100:INK5:CC=28
5010 PLOT1,0,X:PLOT1,23,X:PLOT1,26,X
5020 FORI=5TO33:IFCD(I)=1THENCC=CC-1:NEXT:GOTO5070
5025 IFCC=0THEN6000
5030 PLOTI,22,"/":NEXT
5070 FORT=1TO4
5080 PLOT1,T,2
5090 NEXT
5100 FORT=5TO8
```

Alien Scouts

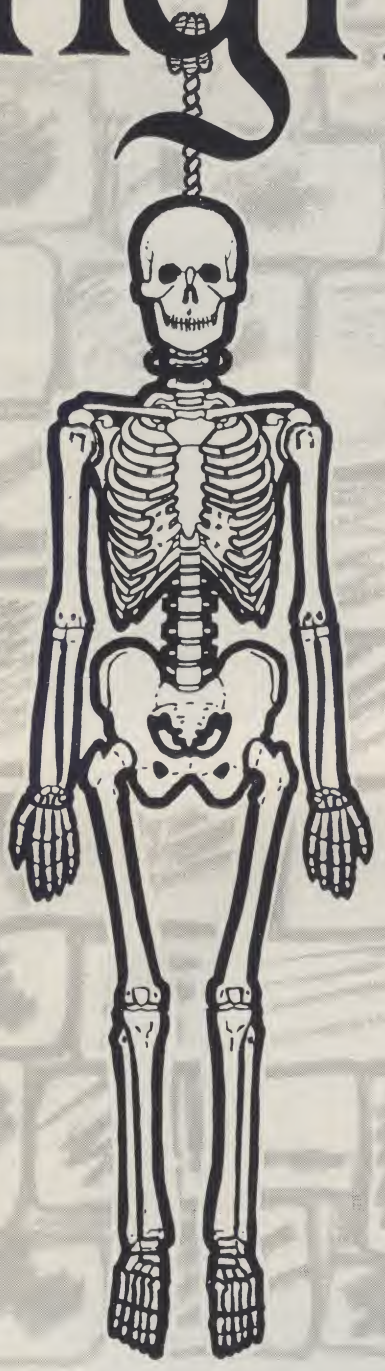
```
5110 PLOT1,T,3
5120 NEXT
5130 FORT=9TO13
5140 PLOT1,T,6
5150 NEXT
5160 FORT=14TO19
5170 PLOT1,T,5
5180 NEXT
5190 FORT=20TO22
5200 PLOT1,T,1
5210 NEXT
5220 PLOT3,25,"High score :"
5230 PLOT17,25,HS$
5240 PLOT25,25,N$
5250 PLOT3,24,"Score :"
5260 PLOT17,24,"Sheet :"
5270 PLOT24,24,SH$
5280 PLOTX1,20,"(":PLOTX1,21,")"
5290 PLOT1,24,2
5300 FORT=1TO35
5310 R=INT(RND(1)*36+1):S=INT(RND(1)*16+2)
5320 PLOTR,S,".":NEXT
5330 PLOT10,24,SC$:A=FRE("")
5340 RETURN
5997 REM-----------------------------
5998 REM        CITY DESTROYED
5999 REM-----------------------------
6000 CLS
6010 FORY=1TO10
6020 EXPLODE:WAIT15+Y*5
6030 NEXT
6040 PRINTCHR$(150)SPC(7)"SERIOUS ANNOUNCEMENT"
6050 PRINT:PRINTSPC(5)"Your city has been destroyed."
6060 GOTO4070
6997 REM-----------------------------
6998 REM       CLEARED 3 WAVES
6999 REM-----------------------------
7000 CLS:PRINTCHR$(146)
7010 PRINT:PRINTSPC(7)"Well done my son,you have"
7020 PRINT"defeated the alien hordes.Now they"
7030 PRINT"come in greater numbers and strength."
7040 PRINT:PRINT"To help you,a BONUS has been awarded."
7080 PRINT:PRINT".....an extra base,and,"
7090 PRINT".....500 extra points."
7100 SC=SC+500:SC$=STR$(SC):LI=LI+1:BA=4
7110 P=P+.05:IFP>.6THENP=.6
7120 WAIT750:GOTO200
9997 REM-----------------------------
9998 REM         INSTRUCTIONS
9999 REM-----------------------------
10000 CLS:PAPER0:INK2:EXPLODE
10010 FORT=1TO6:PRINTCHR$(128+T)SPC(6)"A L I E N  S C O U T S":WAIT
100
10020 EXPLODE:NEXT
10030 PLOT7,15,"Press any key to continue":GETA$
10040 CLS:PRINTCHR$(148)SPC(6)"I N S T R U C T I O N S"
10050 PRINT:PRINT"You control the last missile launcher"
10060 PRINT"of the Inter-Mega-Galactic star fleet".
```

```
10070 PRINT:PRINTCHR$(134)SPC(10)"YOUR MISSION"
10080 PRINT"To destroy the Alien Scouts before"
10090 PRINT"they land,and,if this happens,the"
10100 PRINT"game will end.You start with 1 life,"
10110 PRINT"but bonus lives will be awarded for"
10120 PRINT"meritorious performance."
10130 PRINT:PRINTCHR$(134)SPC(10)"YOUR CONTROLS"
10140 PRINT"To move right -";R$:PRINT"To move left  -";L$:PRINT"To
fIre     -";F$
10145 PRINT"To pause      -";P$
10150 PRINT:PRINTCHR$(131)"Are these keys O.K.-":GETA$
10160 IFA$="N"ORA$="n"ORA$="Y"ORA$="y"THEN10165ELSE10150
10165 IFA$="N"ORA$="n"THEN10170ELSE10210
10170 PRINT:PRINT"To move right -":GETR$
10180 PRINT"To move left  -":GETL$
10190 PRINT"To fire       -":GETF$
10195 PRINT"To pause      -":GETP$
10200 IFR$=L$ORR$=F$ORL$=F$ORL$=P$ORR$=P$ORF$=P$THEN10170ELSE10040
10210 PRINT:PRINTCHR$(131)"Select difficulty level(1-5,1=easy)- ":G
ETSK$
10220 SK=VAL(SK$):IFSK<1ORSK>5ORSK<>INT(SK)THEN10210
10230 RETURN
14997 REM-----------------------------
14998 REM     RE-DEFINE CHARACTERS
14999 REM-----------------------------
15000 FORA1=46368TO46375
15010 READB1:POKEA1,B1:NEXT
15020 DATA0,33,45,33,30,18,18,33
15060 FORA1=46384TO46391
15070 READB1:POKEA1,B1:NEXT
15080 DATA12,18,33,45,45,33,18,12
15090 FORA1=46392TO46399
15100 READB1:POKEA1,B1:NEXT
15110 DATA0,18,18,18,18,0,0,0
15120 FORA1=46400TO46407
15130 READB1:POKEA1,B1:NEXT
15140 DATA0,0,0,0,0,18,18,18
15150 FORA1=46408TO46415
15160 READB1:POKEA1,B1:NEXT
15170 DATA18,30,30,12,63,63,33,33
15180 FORA1=46416TO46423
15190 READB1:POKEA1,B1:NEXT
15200 DATA33,63,12,18,33,18,12,12
15210 FORA1=46424TO46431
15220 READB1:POKEA1,B1:NEXT
15230 DATA63,63,63,63,63,63,63,63
15240 FORA1=46456TO46463
15250 READB1:POKEA1,B1:NEXT
15260 DATA8,10,11,27,31,63,63,63
19997 REM-----------------------------
19998 REM        RESET VARIABLES
19999 REM-----------------------------
20000 SH=1:X1=14:FORT=5TO33:CD(T)=0:NEXT
20010 SC=0:P=SK*.07+.2:BA=4:LI=1:FM=0:SM=0:A1=0:A2=0:A3=0:A4=0:W=0:
BO=0
20020 SH$=STR$(SH):SC$=STR$(SC)
20030 CLS:RETURN
```



Hangman

Runs on TRS-80



Hangman

This program is intended for use on the TRS-80, Video Genie range of computers. It will not need any explanation as there cannot be anyone who has not played Hangman using pencil and paper. Instructions however are included in the program.

To change the words in the program, the mystery word should be first, and in an odd numbered position in the data list, followed by the clue. The word pairs are grouped thus: Junior 30 pairs, Easy, 30 pairs, Medium, 50 pairs and Hard, 90 pairs. Words should be put in the appropriate positon.

Conversion Clues

The processing statements of this program are in standard Microsoft Basic and should not cause any problems, except on Sinclair machines where the string handling is different.

As usual the problems of converting the program are caused by the graphics.

The Tandy screen is 16 rows of 64 characters, which are defined by the "PRINT @ " positions numbered from 0 to 1023, or by POKE statements which are PRINT @ number plus 15360. The graphics characters are the standard Teletext set, which can be found most months in "Computing Today", (128 should be added to the published code, to make it Tandy compatible.

The gallows are drawn at the upper left hand side of the screen with the game status to the right. Input and other messages are printed near the bottom.

To convert the drawing of the gallows, instructions that draw a gallows in 10 sections, suitable to your computer should be put in lines 1000 to 1090 in reverse order (i.e. the first section to be drawn is line 1090), followed by: GOTO 1100 at the end of each line.

Instructions which may be unfamiliar are:

CLS — Clears screen.

INKEY$ — Inputs a character from the keyboard. GET is the alternative on some micros or the program will have to be changed to use an INPUT statement.

STRING$(L,"—") — Produces L number of dashes.

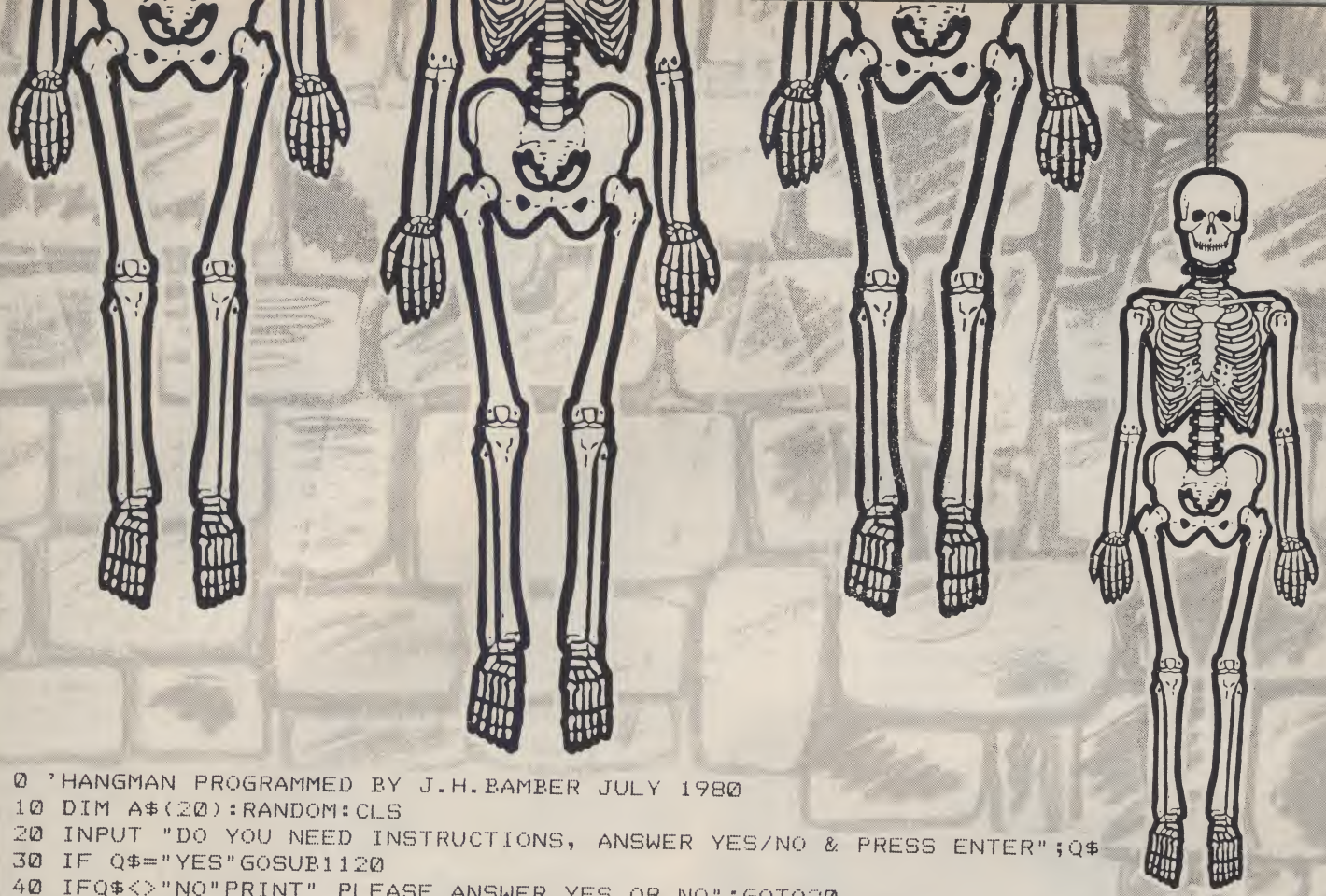
CHR$)255) — Produces 64 blank spaces, and is used in this program to clear lines for further printout.

RUNdown

Line	Action
10	Dimensions A$ (array), randomises random number generator, clears screen.
20-40	Instruction routine.
100-150	is the data list.
500-520	Sets up the VDU screen and obtains level of play
565	False input trap.
570	Makes sure that A is an odd number, (the mystery word is odd, the clue even).
580-600	Reads word & clue into A$,B$ & resets the data counter.
610	Initialises the variables.
620-660	Prints heading & game info. to the right of screen.
670-690	Puts the letters of A$ into array.
700-710	Inputs a letter.
720	Clears 2 lines for further output.
730-750	Checks to see if letter is in array, if yes goes to 810.
760	Wrong letter message.
770	Draws a section of gallows & decrement M.
780	Updates mistake score.
790	Checks to see if gallows is complete, if so prints game lost. Goes to new game?
800	Returns for next letter.
810	Correct letter message.
820	Puts letter into word on screen & deletes it from array.
830	Decrements no. of letters still to find.
840	Prints no. of letters to find and if not 0 returns for next letter.
850	Player wins printout.
860-880	New game? routine.
1000-1090	Each line contains graphics instruction for one section of the gallows.
1100	Decrements no. of mistakes left.
1120-1190	Instructions subroutine.

Variables Used

A$	=	Mystery word.
L$	=	Letter input.
A$ (array)	=	Individual letters of mystery word.
B	=	PRINT @, position.
L	=	no. of letters in word.
R	=	No. of letters to find.
B$	=	Clue.
Q$	=	General string input.
M	=	Mistakes left.
C,N&X	=	For next counters.



```
0 'HANGMAN PROGRAMMED BY J.H.BAMBER JULY 1980
10 DIM A$(20):RANDOM:CLS
20 INPUT "DO YOU NEED INSTRUCTIONS, ANSWER YES/NO & PRESS ENTER";Q$
30 IF Q$="YES"GOSUB1120
40 IFQ$<>"NO"PRINT" PLEASE ANSWER YES OR NO":GOTO20
100 DATABALL,BOUNCY,APPLE,FRUIT,ORANGE,FRUIT,PUSSY,CAT,PUNCH,AND JUDY,HAT,CAP,RI
NG,ROUND,RED,COLOUR,BABY,CHILD,DOLL,TOY,BUN,CAKE,TEDDY,BEAR,DISH,PLATE,CROSS,ANG
RY,HAPPY,GLAD,FALL,TRIP,GIFT,PRESENT,SMALL,LITTLE,PEEP,LOOK,SHUT,CLOSE,TWO,PAIR
105 DATASLEEP,NAP,ROUND,CIRCLE,STONE,PEBBLE,FUNNY,JOKE,DRESS,FROCK,MAT,CARPET,DO
G,PET,LOT,MUCH,DAISY,FLOWER,LEAP,JUMP,LEAFY,TREE,BUCKET,PAIL,SIMPLE,EASY,WATER,W
ET,HEAL,CURE,FOG,MIST,SHAM,FAKE,DANGER,PERIL,CANDID,FRANK,KEEN,EAGER,BLUE,AZURE
110 DATAEDGE,RIM,BLAZE,FIRE,ICY,COLD,STRING,CORD,LAZY,IDLE,FINAL,LAST,TASK,JOB,F
RESH,NEW,THIN,SLIM,HIGH,LOFTY,GLAD,HAPPY,TEAR,RIP,SILLY,DAFT,BOY,LAD,GIRL,LASS,F
ALL,SLIP,LET,ALLOW,MINUTE,TINY,SHARP,EDGED,SECURE,SAFE,LEGAL,LAWFUL,ROUSE,WAKE
115 DATACORRECT,RIGHT,PILE,STACK,SNUG,COSY,TIMID,SHY,SEARCH,SEEK,RETAIN,KEEP,JOU
RNEY,TRAVEL,INITIAL,FIRST,HUE,SHADE,DANGER,RISK,EXPAND,GROW,GALE,STORM,FUSS,ADO,
METHOD,WAY,ALIEN,FOREIGN,MUTE,DUMB,GHOST,SPOOK,RESCUE,SAVE,FRAIL,WEAK,CRUSH,SQUA
SH
120 DATAELBOW,JOINT,CRAFTY,SLY,SMALL,TINY,POLITE,CIVIL,FAST,QUICK,WEALTH,RICHES,
SAILOR,MARINER,MYTH,FABLE,OCCUR,HAPPEN,HEATHEN,PAGAN,THIRSTY,DRY,VALUE,WORTH,SKI
LL,ABILITY,LAIR,DEN,ABHOR,LOATHE,BUSH,SHRUB,RESIDE,LIVE,NEAR,CLOSE,JESTER,CLOWN
125 DATACORSAIR,PIRATE,TRUDGE,PLOD,PUNY,FEEBLE,ADHERE,STICK,AMOUNT,SUM,ABHOR,DET
EST,ZEPHYR,BREEZE,YACHT,BOAT,EXCESS,SURPLUS,REQUEST,ASK,RANCID,SOUR,ECSTASY,BLIS
S,ABHOR,HATE,FACADE,FRONT,OBESE,FAT,PRECISE,EXACT,ENIGMA,MYSTERY,ECHO,REPEAT
130 DATAROGUE,RASCAL,ARID,DRY,SCATTER,STREW,REMOTE,DISTANT,REPLICA,COPY,SQUIRM,W
RITHE,PUZZLE,MYSTIFY,OBTUSE,STUPID,OUTCOME,RESULT,ZENITH,PEAK,SUCCOUR,AID,TRANQU
IL,SERENE,NOVICE,TYRO,UNIQUE,SOLE,SKETCH,OUTLINE,CONCUR,AGREE,THREATEN,MENACE
135 DATAECONOMY,THRIFT,RESIGN,QUIT,RECLUSE,HERMIT,ROWAN,TREE,SEQUOIA,TREE,GUARDS
MAN,SOLDIER,HUSSAR,SOLDIER,INANE,STUPID,QUAINT,UNUSUAL,ABSCOND,RUN AWAY,ASPECT,V
IEW,OBSTRUCT,HINDER,PICTURESQUE,SCENIC,DELICATE,FRAGILE,YARN,STORY,WRESTLE,FIGHT
140 DATAGYRATE,WHEEL,VIBRATE,SHIVER,VERBAL,SPOKEN,UNDO,LOOSEN,SEETHE,BOIL,TRIBE,
FAMILY,BOLIVIA,COUNTRY,SYCAMORE,TREE,LABURNUM,TREE,ABYSS,CHASM,AQUIRE,OBTAIN,REA
SON,CAUSE,MARIGOLD,FLOWER,PAMPER,SPOIL,DEPEND,RELY,ANTICIPATE,EXPECT,IMITATION,C
OPY
145 DATAFATUOUS,INANE,IFINITE,VAST,GUARANTEE,INSURE,KNAVE,VILLAIN,LABYRINTH,MAZE
,NEUTRAL,IMPARTIAL,NIMBLE,AGILE,SAUNTER,STROLL,DERIDE,SCOFF,ANIMOSITY,MALICE,HAG
GARD,GAUNT,DREARY,BORING,REVERIE,DREAM,EPOCH,ERA,FALLACIOUS,UNTRUE,COMMOTION,FUS
S
150 DATAIMPUDENT,CHEEKY,DEAFENING,LOUD,QUAGMIRE,BOG,COMBINE,MIX,OBNOXIOUS,ODIOUS
,PETUNIA,FLOWER,GEUM,FLOWER,ANENOME,FLOWER,DELPHINIUM,FLOWER,NASTURTIUM,FLOWER,U
LTIMATE,LAST,PROVERB,ADAGE,ANTIRRHINUMUM,FLOWER
500 CLS:PRINT@25,"H A N G M A N";
510 PRINT@704,"PRESS THE FIRST LETTER OF THE LEVEL YOU WISH TO PLAY AT,
(J)UNIOR, (E)ASY, (M)EDIUM OR (H)ARD"
```

```
520 A$=INKEY$:IFA$=""GOTO520
530 IFA$="J"A=RND(60):GOTO570
540 IFA$="E"A=RND(60)+60:GOTO570
550 IFA$="M"A=RND(100)+120:GOTO570
560 IFA$="H"A=RND(180)+220:GOTO570
565 A$="":PRINT"YOU MUST PRESS J,E,M, OR H":GOTO520
570 IF INT(A/2)*2=ATHENA=A-1
580 FOR N = 1 TO A STEP 2
590 READ A$,B$
600 NEXT N:RESTORE
610 B=288:L=LEN(A$):R=L
620 CLS:PRINT@25,"H A N G M A N";
630 PRINT@224,"YOUR CLUE IS :- ";B$;
640 PRINT@B,STRING$(L,"-");
650 M=10:PRINT@416,M;"  MISTAKES TO GO";
660 PRINT@352,L;" LETTERS TO FIND";
670 FOR C=1TOL
680 A$(C)=MID$(A$,C,1)
690 NEXT
700 PRINT@704,"WHAT LETTER DO YOU CHOSE?";
710 L$=INKEY$:IFL$=""GOTO710
720 PRINT@704,CHR$(255):PRINT@768,CHR$(255)
730 FOR C = 1 TO L
740 IFA$(C)=L$ GOTO 810
750 NEXT
760 PRINT@786,"WRONG THIS TIME"
770 ON M GOSUB1090,1080,1070,1060,1050,1040,1030,1020,1010,1000
780 PRINT@416,M;
790 IF M = 0 PRINT@832,"YOU LOSE, THE WORD IS :-  ";A$:GOTO 860
800 GOTO700
810 PRINT@768,"GOOD IT'S RIGHT!!";
820 PRINT@B+C-1,A$(C);:A$(C)="0"
830 R=R-1
840 PRINT@352,R;:IF R > 0 GOTO 700
850 IF R = 0 PRINT@832,"YOU WIN !!! THE WORD IS :- ";A$
860 PRINT@896,"DO YOU WANT TO PLAY AGAIN, ANSWER YES OR NO & PRESS ENTER";:INPUT
    Q$
870 IFQ$="YES"GOTO 500
880 PRINT@896,CHR$(255):IFQ$<>"NO"PRINT@960,"PLEASE ANSWER YES OR NO, & PRESS EN
TER    ";:GOTO 860
890 END
1000 FORX=15942 TO 15964 : POKEX,176:NEXT:GOTO1100
1010 FORX=15452 TO 15964 STEP64:POKEX,149:NEXT:GOTO1100
1020 FORX=15440 TO 15451:POKEX,131:NEXT:GOTO1100
1030 POKE15448,167:POKE15513,165:POKE15578,165:POKE15579,176:POKE15834,150:POKE1
5835,131:POKE15897,150:POKE15960,182:GOTO1100
1040 POKE15440,191:POKE15504,179:POKE15505,153:POKE15503,166:GOTO1100
1050 POKE15568,191:POKE15632,191:POKE15696,191:GOTO1100
1060 POKE15569,140:POKE15570,144:POKE15634,130:POKE15635,164:POKE15700,137:GOTO
    1100
1070 POKE15567,140:POKE15566,160:POKE15630,129:POKE15629,152:POKE15692,134:GOTO1
100
1080 POKE15759,134:POKE15758,160:POKE15822,129:POKE15821,152:GOTO1100
1090 POKE15761,137:POKE15762,144:POKE15826,130:POKE15827,164
1100 M=M-1:RETURN
1110 END
1120 CLS:PRINT"THIS IS A GAME WHERE YOU HAVE TO FIND A WORD I HAVE CHOSEN,"
1130 PRINT"I WILL GIVE YOU A CLUE AND TELL YOU HOW MANY LETTERS.
1140 PRINT"      YOU HAVE TO TYPE IN THE LETTERS ONE AT A TIME, IF TWO "
1150 PRINT"LETTERS ARE THE SAME ONLY ONE SPACE WILL BE FILLED FOR EACH
 ENTRY."
1160 PRINT"  IF YOU GET A LETTER WRONG A SECTION OF THE GALLOWS WILL BE DRAWN."
1170 PRINT"  THERE ARE TEN SECTIONS TO BE DRAWN BEFORE YOU ARE HANGED,
AND IF YOU GET THE WORD RIGHT BEFORE THE GALLOWS ARE DRAWN YOU
BEAT THE HANGMAN AND WIN.
1180 INPUT"      SO PRESS ENTER TO START PLAYING,
                        AND THE BEST OF LUCK !!!!!";Q$
1190 Q$="NO":RETURN
```

Play your cards right

This program is a version of the popular television series of the same name, but without the habits and persona of Bruce Forsythe.

The program runs in just over 5K RAM on any expanded VIC-20. When run, a copyright notice scrolls up the screen followed by an instruction page. Pressing "D" deals four cards, all face down but the first. The brief instructions in the program are self explanatory. On upturning all the cards successfully, the player is treated to a celebratory "Whoop", otherwise the computer blows a respberry!

RUNdown

Line	Action
12-60	Introduction
100-110	Set up main variables.
120-288	Random numbers and Picture cards.
300-330	Deal cards.
340-346	Random suites.
350	If correct then goto "win" routine.
360-502	Check if correct and print next card.
600-811	Print cards routines.
950-952	"Wrong" routine.
1005-1015	"Win" routine.
1050-1051	"Pair" routine.
2000-2040	"Win" sound routine.
3000-3030	Bleep routine.
4000-4040	"Wrong" sound routine.

Variables used

Line	Action
A	Cards face down.
C6-C8	Cursor lefts.
J,NC	Counter flags.
V	Volume location (36878)
S1-S3	Voices.
R1-R4	Card values.
RS	Random suits.
S	Suit.
C	Suit colours.
O,K	Which random numbers.
SS	Screen scroll location (36865)
A	Wrong answer flag.

Conversion clues

Conversion to other micros should be a fairly simple process. The suit symbols are part of the VIC standard character set and can either be omitted or user defined graphics used. "Get" can be replaced by "Inkeys". the reverse characters are mostly cursor controls and can be replaced with "Print At".

Cursor controls

Reverse heart	= CLR/CURSOR HOME
Reverse "S"	= CURSOR HOME
Reverse square bracket	= CURSOR RIGHT
Reverse "Q"	= CURSOR DOWN

```
 1 REM****************
 2 REM****************
 3 REM*****PLAY YOUR***
 4 REM****CARDS RIGHT**
 5 REM****************
 6 REM****************
 7 REM***(C) J.FISHER**
 8 REM****************
 9 REM******4/9/83******
10 REM****************
11 REM****************
12 V=36878:S3=36876
13 SS=36865:GOSUB5000:PRINT"■○":POKESS,165:GOTO20
14 POKESS,165
15 FORS=1TO131
16 POKESS,165-S
17 NEXTS:GOTO40
20 PRINT"XXXXXPLAY YOUR CARDS"
21 PRINT"XXXXXXXXXXXXXXXXIGHT"
22 PRINT"XXXXXXXXXXXXXXXXXXXXXX"
23 PRINT"XXXXXXXXXXXXXXXXXXXXXXXXXXXX"
24 PRINT"XXXXXXXXXXXXXXXXXXXX
```

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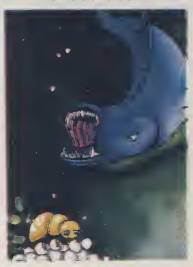

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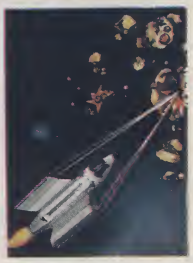
£5.50 - VIC 20



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Spuck

Spuckman is a version of the ever popular arcade game for the 16K or 48K Spectrum. There are two extremely intelligent ghosts, so you will need the four power pills and five lives you are given. The ghosts are red when dangerous and green when safe, and are Graphic 'A's. The Muncher can face either left or right, and so is defined onto the keys 'B' and 'C'. The main problem encountered when writing the program, was preventing the ghosts from getting trapped in dead ends and corners of the maze, and this problem was only overcome by redesigning the layout with a minimum of these restricting positions present. The game is far from easy, but the ghosts can be slightly disabled by adding a random element to the movement logic in lines 105 to 155.

Keys T,V,F and G, are used for movement, but these can be altered as desired in line 90.

Warning! Save and verfify the program before running!

Here is a general breakdown of the listing.

RUNdown

Lines	Action
1	Protects listing from erasure.
10 & 20	Increment Score.
30	GOSUB sets up variables and Maze.
40 & 60	More characters.
50	Calculate which way the Muncher is facing.
40 & 60	More characters.
50	Calculates which way the Muncher is facing.
70-90	Calculate new position of Muncher.
100-155	Boolean Algebra for movement of The Ghosts.
160-220	Check for eating of power-pill, capture, exit/entrance etc.
230 & 240	Loss of a life/end of game.
250-310	Draw Maze and set up variables.

Variables	Use
P	Direction of Muncher.
P$	Appearance of Muncher (depends on P).

Runs on Spectrum

man

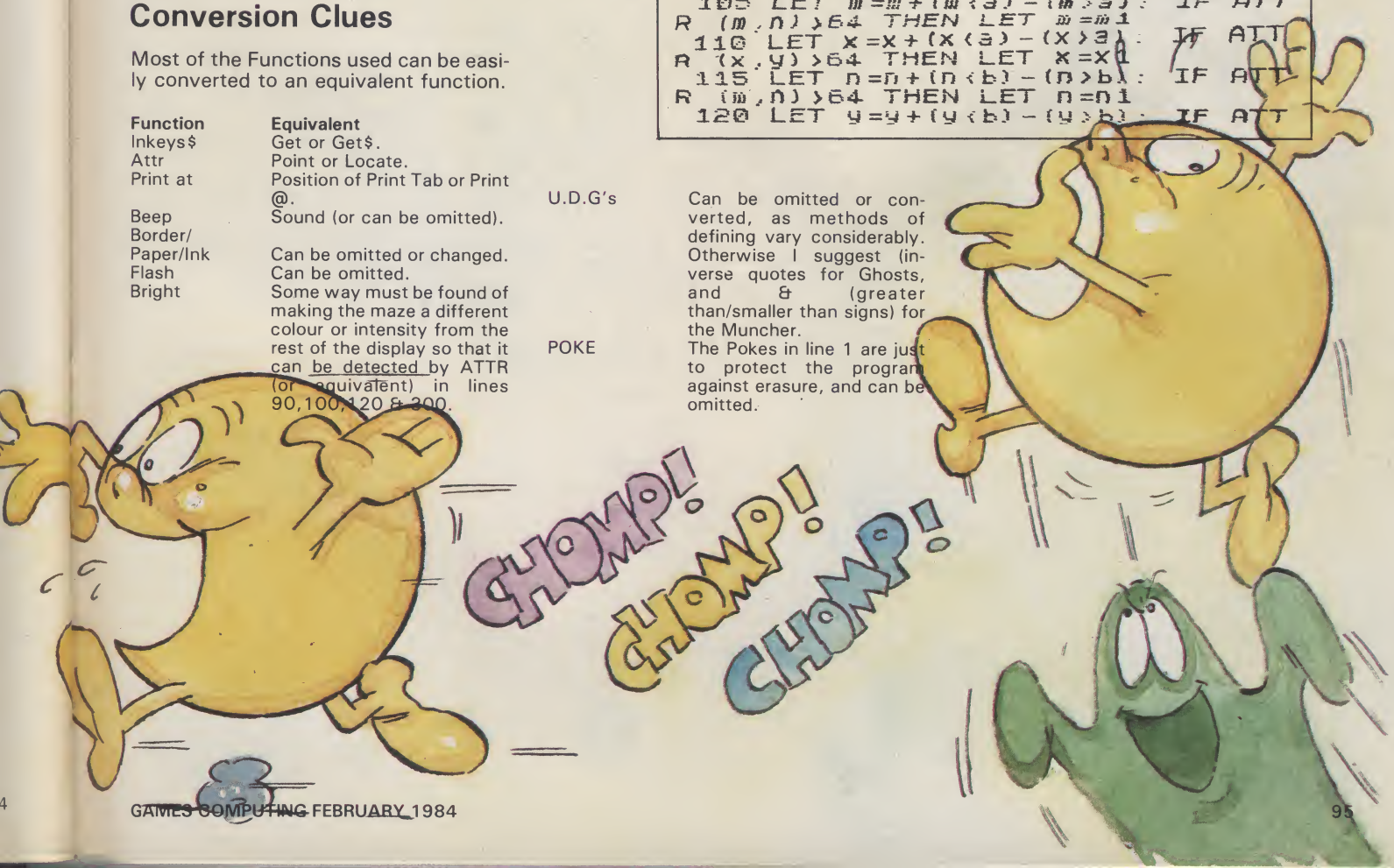
```
   1 POKE 23568,2: GO TO 30: REM
 SPUCKMAN © A.Weekes 1982
  10 LET sc=sc+5: BEEP 0.01,60:
BEEP 0.01,-20: IF sc=1575 THEN L
ET s=s+sc: BEEP 1,23: LET sc=0:
GO SUB 300
  20 RETURN
  30 GO SUB 250
  35 IF m<>m1 OR n<>n1 THEN PRIN
T AT m1,n1;s$(m1,n1); INK pp+3;A
T m,n;"■"
  40 IF x<>x1 OR y<>y1 THEN PRIN
T AT x1,y1;s$(x1,y1); INK pp+3;A
T x,y;"■"
  50 IF b<>b1 THEN LET p=2-SGN (
b-b1)
  60 IF a<>a1 OR b<>b1 THEN PRIN
T AT a1,b1;" "; INK 6;AT a,b;p$(
p)
  70 LET a1=a: LET b1=b: LET x1=
x: LET y1=y: LET m1=m: LET n1=n
  80 IF INKEY$<>"" THEN LET a$=I
NKEY$
  90 LET a=a+(a$="v")-(a$="t"): L
ET b=b+(a$="g")-(a$="f"): IF AT
TR (a,b)>64 THEN LET a=a1: LET b
=b1
 100 IF pp=1 THEN GO TO 140
 105 LET m=m+(m<a)-(m>a): IF ATT
R (m,n)>64 THEN LET m=m1
 110 LET x=x+(x<a)-(x>a): IF ATT
R (x,y)>64 THEN LET x=x1
 115 LET n=n+(n<b)-(n>b): IF ATT
R (m,n)>64 THEN LET n=n1
 120 LET y=y+(y<b)-(y>b): IF ATT
```

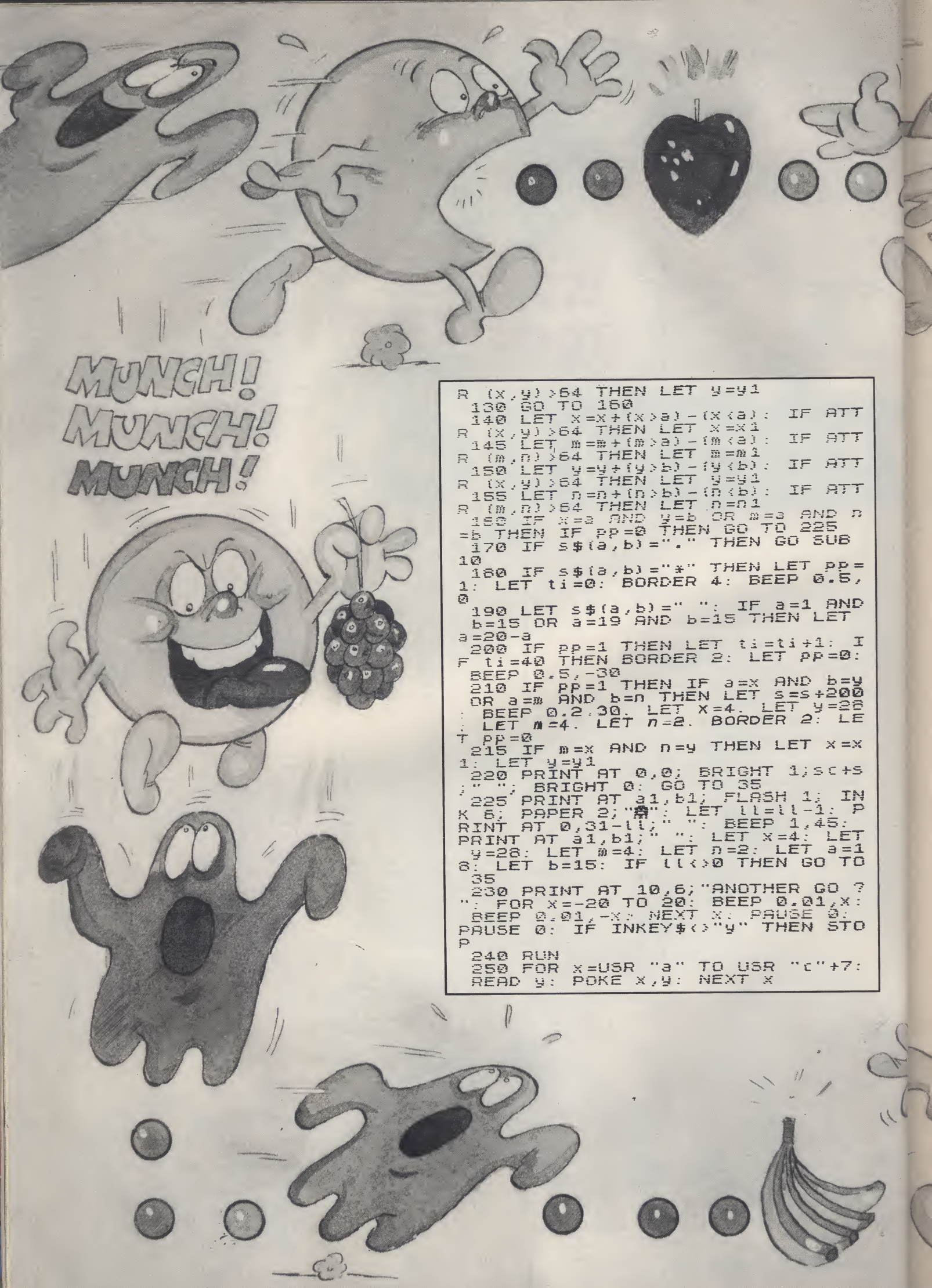
A$	Used for reading keyboard.
S&SC	Scoring variables.
X,Y&X1,Y1	Co-ordinates of Ghost 1.
M,N	
&M1,N1	Co-ordinates of Ghost 2
A,B&A1,B1	Co-ordinates of Muncher.
S$ (22,31)	Stores all wafers in an array.
PP	Power Pill state (1=On 0=Off)
F&C	Utility variables.

Conversion Clues

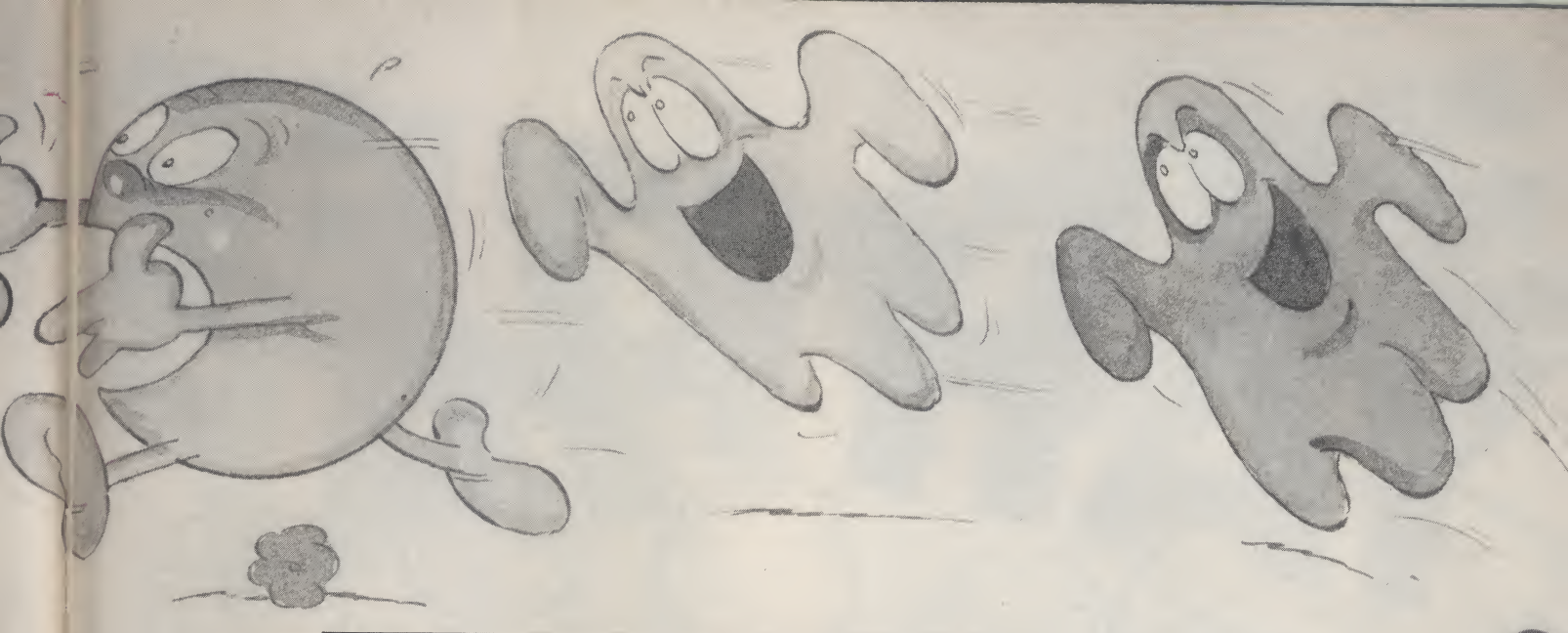
Most of the Functions used can be easily converted to an equivalent function.

Function	Equivalent
Inkeys$	Get or Get$.
Attr	Point or Locate.
Print at	Position of Print Tab or Print @.
Beep	Sound (or can be omitted).
Border/ Paper/Ink	Can be omitted or changed.
Flash	Can be omitted.
Bright	Some way must be found of making the maze a different colour or intensity from the rest of the display so that it can be detected by ATTR (or equivalent) in lines 90,100,120 & 300.
U.D.G's	Can be omitted or converted, as methods of defining vary considerably. Otherwise I suggest (inverse quotes for Ghosts, and & (greater than/smaller than signs) for the Muncher.
POKE	The Pokes in line 1 are just to protect the program against erasure, and can be omitted.

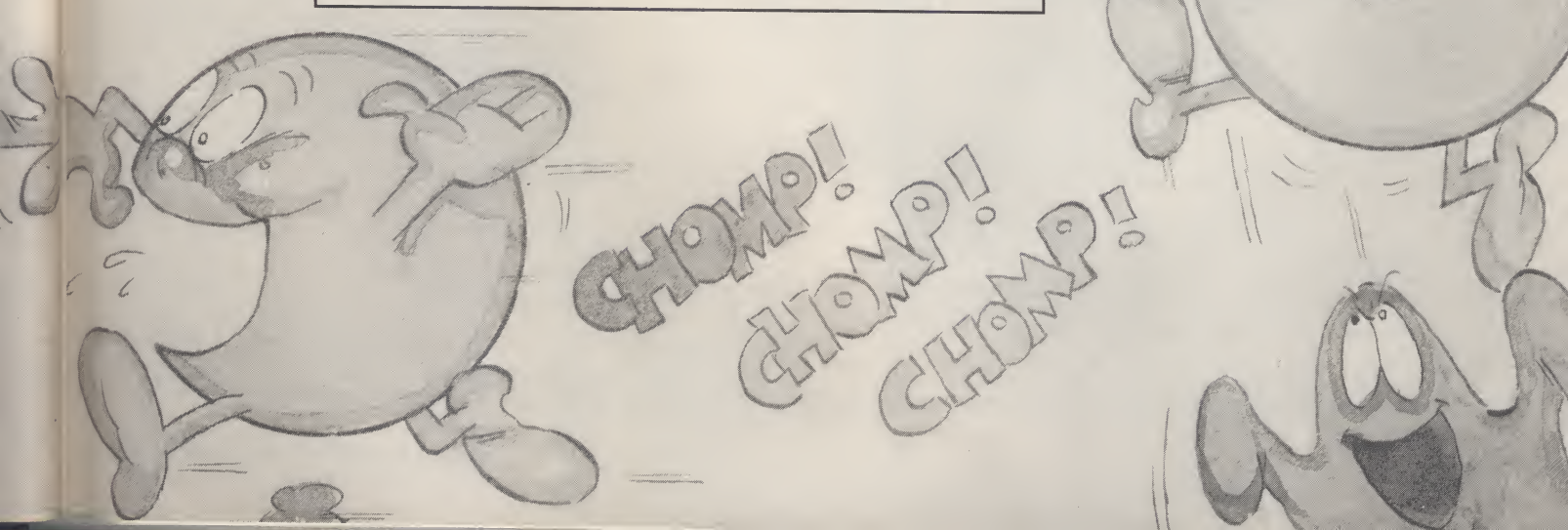





```
R  (x,y)>64 THEN LET y=y1
  130 GO TO 160
  140 LET x=x+(x>a)-(x<a): IF ATT
R  (x,y)>64 THEN LET x=x1
  145 LET m=m+(m>a)-(m<a): IF ATT
R  (m,n)>64 THEN LET m=m1
  150 LET y=y+(y>b)-(y<b): IF ATT
R  (x,y)>64 THEN LET y=y1
  155 LET n=n+(n>b)-(n<b): IF ATT
R  (m,n)>64 THEN LET n=n1
  160 IF x=a AND y=b OR m=a AND n
=b THEN IF pp=0 THEN GO TO 225
  170 IF s$(a,b)="." THEN GO SUB
10
  180 IF s$(a,b)="*" THEN LET pp=
1: LET ti=0: BORDER 4: BEEP 0.5,
0
  190 LET s$(a,b)=" ": IF a=1 AND
  b=15 OR a=19 AND b=15 THEN LET
a=20-a
  200 IF pp=1 THEN LET ti=ti+1: I
F  ti=40 THEN BORDER 2: LET pp=0:
  BEEP 0.5,-30
  210 IF pp=1 THEN IF a=x AND b=y
  OR a=m AND b=n THEN LET s=s+200
  : BEEP 0.2,30: LET x=4: LET y=28
  : LET m=4: LET n=2: BORDER 2: LE
T pp=0
  215 IF m=x AND n=y THEN LET x=x
1: LET y=y1
  220 PRINT AT 0,0; BRIGHT 1;s;s+s
;" ": BRIGHT 0: GO TO 35
  225 PRINT AT a1,b1; FLASH 1; IN
K 6; PAPER 2;"■": LET ll=ll-1: P
RINT AT 0,31-ll;" ": BEEP 1,45:
PRINT AT a1,b1;" ": LET x=4: LET
  y=28: LET m=4: LET n=2: LET a=1
8: LET b=15: IF ll<>0 THEN GO TO
  35
  230 PRINT AT 10,6;"ANOTHER GO ?
": FOR x=-20 TO 20: BEEP 0.01,x:
  BEEP 0.01,-x: NEXT x: PAUSE 0:
PAUSE 0: IF INKEY$<>"y" THEN STO
P
  240 RUN
  250 FOR x=USR "a" TO USR "c"+7:
  READ y: POKE x,y: NEXT x
```



```
 260 DATA 60,255,219,255,195,255
,153,153,60,126,239,127,31,127,2
54,60,60,126,247,254,246,254,127
,60
 270 PRINT AT 18,15;"■": LET ll=
5: LET p$="■ ■": LET a$="": LET
s=0: LET sc=0: LET m=4: LET n=2:
 LET m1=m: LET n1=n: LET x=4: LE
T y=28: LET x1=x: LET y1=y: LET
a=16: LET b=15: LET a1=a: LET b1
=b: LET p=1: DIM s$(22,31): LET
pp=0: INK 6: PAPER 0: CLS : BORD
ER 2: BRIGHT 1
 280 READ f,g: IF f=99 THEN FOR
f=0 TO 21: PRINT AT f,31;"■": NE
XT f: FOR f=0 TO 31: PRINT AT 21
,f;"■": NEXT f: GO TO 300
 290 PRINT AT f,g;"■";AT 20-f,g;
"■";AT 20-f,30-g;"■";AT f,30-g;"
■": GO TO 280
 300 BRIGHT 0: FOR f=1 TO 10: FO
R g=1 TO 15: IF ATTR (f,g)<64 TH
EN PRINT AT f,g;".";AT 20-f,g;".
";AT 20-f,30-g;".";AT f,30-g;".
": LET s$(f,g)=".": LET s$(20-f,g
)=".": LET s$(20-f,30-g)=".": LE
T s$(f,30-g)="."
 310 DATA 3,11,3,13,3,15,4,15,0,
0,0,1,0,2,0,3,0,4,0,5,0,6,0,7,0,
8,0,9,0,10,0,11,0,12,0,13,0,14,0
,15,1,0,1,1,1,2,1,3,1,4,1,5,1,6,
1,7,1,8,1,9,1,10,1,11,1,12,1,13,
1,14,2,0,2,1,2,3,3,0,3,3,3,5,3,9
,3,7,4,0,4,1,4,7,4,9,4,11,4,13,5
,0,5,1,5,3,5,5,6,7,5,9,6,0,6,1,6
,5,6,9,6,11,6,13,6,14,6,15,7,0,7
,1,7,3,7,5,7,7,7,9,8,0,8,9,8,11,
6,13,8,14,9,0,9,2,9,3,9,5,9,7,9,
9,9,11,9,13,9,14,10,0,10,5,10,7,
10,11,99,99
 320 NEXT g: NEXT f: PRINT AT 0,
27; BRIGHT 1;"■■■■■"; BRIGHT 0:
LET s$(3,1)="*": LET s$(3,29)="*
": LET s$(17,1)="*": LET s$(17,2
9)="*": PRINT AT 3,1;"*";AT 17,1
;"*";AT 3,29;"*";AT 17,29;"*": R
ETURN
```



Runs on Atom

YAHTZEE

Yahtzee (needs 5K text 1K graphics)

Yahtzee is a dice game for up to four players. All 5 dice can be rolled up to 3 times, each dice can be held whilst the rest are rolled. The object is to roll the dice and fill the score grid catagories. The grid looks as follows:

Catagory	Example	Score
ONES	12141 (score=3)	Additive total of all Ones present.
TOWS	26451 (score=2)	Additive total of all Twos present.
THREES	36313 (score=9)	Additive total of all Threes present.
FOURS	46125 (score=4)	Additive total of all Fours present.
FIVES	51535 (score=15)	Additive total of all Fives present.
SIXES	61665 (score=18)	Additive total of all Sixes present.
3 KIND	333 other 2 dice can be anything (score=9 + other 2 dice).	Additive face total of all dice provided 3 dice are the same.
4 KIND	2222 other dice can be anything (score=8 + other dice)	Additive face total of all dice provided 4 dice are the same.
4 STRT	1234 or 2345 or 3456	30
5 STRT	12345 or 23456	40
FULL Ho	66611 or 44222	25
YAHTZEE	All dice with same face value	50
CHANCE		Additive face value of all dice.

If the catagories 1-6 have a total of 63 or more a bonus of 35 is given, (i.e. at least 3 of each kind must be gained).

Once a catagory is used by a player it cannot be re-used by that player.

```
 3D1MAA(14),BB(14),CC(14),DD(14),EE(14),FF(6),P-1;V=#2800
 4P.$21;[;:FF6 JSR#FFE3;STA#90;RTS;]:Q=#80:G.1
 5mCLEAR0;P.$30"HOW MANY PLAYERS (MAX 4)?";LI.FF6;@=4
 9R=?#90-48;P.R';?#E1=0;U=#2880;IFR)4G.m
20P=0;X=-7;$V="";P."NAMES (MAX 6 CHARACTERS)"';F.S=1TOR;X=X+7
22IN.$U;$V+LEN(V)=$U;F.F=LEN(V)TO(X+6);$V+LEN(V)=" ";N.
25N.;CLEAR0;S=(13*R)+1;F.A=1TO13;AA(A)=-1;BB(A)=-1
27CC(A)=-1;DD(A)=-1;EE(A)=0;N.;AA(0)=0;BB(0)=0;CC(0)=0
30DD(0)=0;EE(0)=0;AA(14)=0;BB(14)=0;P.$30;CC(14)=0;DD(14)=0
40P."1-ONES"'"2-TWOS"'"3-THREES"'"4-FOURS"'"5-FIVES"'"6-SIXE"
45P."S"'"7-3 KIND"'"8-4 KIND"'"9-4 STRT"'"10-5 STRT"'"11-FUL"
50P."L HO"'"12-YAHTZEE"'"13-CHANCE"'" TOTAL"$30;?#E0=28
55P."dice";MOVE22,6;DRAW22,48;MOVE30,6;DRAW30,48;MOVE38,6
60DRAW38,48;MOVE46,6;DRAW46,48;MOVE54,6;DRAW54,48;@=0
70dP=P+1;IFP=R+1 P=1
75S=S-1;IFS=0G.i
76N=P*4;F.L=(#8008+N)TO#81AB+N S.32;F.F=L TO L+2
80?F=128+?F;N.;N.;Y=0;F F=0TO14;IFP=4;EE(F)=DD(F)
82IFP=3;EE(F)=CC(F)
85IFP=2;EE(F)=BB(F)
87IFP=1;EE(F)=AA(F)
90N.;A=A.R.%6+1;B=A.R.%6+1;C=A R.%6+1;D=A R.%6+1;E=A.R.%6+1
92GOS.a;DO Y=Y+1;GOS.e
95F=(P-1)*7;$U=$V+F;$U+7="";GOS.q
98P."DICE TO ROLL F=NON"
99$Q="          ";IN.$Q;P.$11;LI.#FE22;IF$Q="F";Y=5;G.g
100F.G=0TO5;F.F=0TO4;IFF?Q=65;A=A.R.%6+1
102IFF?Q=66,B=A.R.%6+1
105IFF?Q=67;C=A.R.%6+1
107IFF?Q=68;D=A.R.%6+1
110IFF?Q=69;E=A.R.%6+1
112N.;GOS.a;N.
115gU. Y)1
120hGOS.e;$Q="";GOS.q;IN."RESULT CATEGORY 1-13"$Q;P.$11;X=90
121LI #FE22;IF1?Q=13;X=?Q-48;G.124
122IF2?Q=13;X=(1?Q-48)+10*(?Q-48)
124IFX)13 ORX(1 G.h
125IFX(7 G.600
127G.(600+(X*20))
130bP.$30;EE(14)=0;F.F=1TO13;IFEE(F)(0;G.137
135EE(14)=EE(14)+EE(F)
137N.;IFEE(0))62;EE(14)=EE(14)+35;GOS.e;P."BONUS GIVEN";G.f
140F.F=1TO14
141IFP=1;AA(F)=EE(F);?#E0=12;IFAA(F))-1;P.AA(F);AA(0)=EE(0)
142IFP=2;BB(F)=EE(F);?#E0=16;IFBB(F))-1;P.BB(F);BB(0)=EE(0)
145IFP=3;CC(F)=EE(F);?#E0=20;IFCC(F))-1;P.CC(F);CC(0)=EE(0)
147IFP=4;DD(F)=EE(F);?#E0=24;IFDD(F))-1;P.DD(F);DD(0)=EE(0)
150P.';N.;R.
172fP.$7$7$7$7$30;F.F=0TO30;WAIT;N.;G.140
175wGOS.e;P."SELECTION USED          ";F.F=0TO25;WAIT;N.;G.h
180eP.$30'''''''''''''''';R.
190iFF(1)=AA(14);FF(2)=BB(14);FF(3)=CC(14);FF(4)=DD(14)
193F.B=1TO3;F.C=B+1TO4;IFFF(B)(FF(C) G.196
195D=FF(B);FF(B)=FF(C);FF(C)=D
196N.;N.;F.F=0TO200;WAIT;N.;P.$12;@=5;F.F=4TO(5-R) S.-1;O=0
200IFFF(F)=AA(14);$U=$V;GOS.o
205IFFF(F)=BB(14);$U=$V+7;GOS.o
206IFFF(F)=CC(14);$U=$V+14;GOS.o
207IFFF(F)=DD(14);$U=$V+21;GOS.o
208IFO)1;F=F+1-O
210N.
212P.''"PRESS Y FOR ANOTHER GAME";LI.FF6;IF?#90=89 G.m
217P.$12"GOODBYE";E.
220o$U+7="";P.',5-F,FF(F),"  ",$U;O=O+1;R.
300qP.$U;F.F=5 TO 1 S.-1;IFCH$U+F=32 P.$8
305N.;R.
367REM
400ICLEAR0;P.$6$30''''''';?#E0=12;P."YAHTZEE";Y=10
410F.X=6TO60 S.17
415MOVEX,Y;DRAW(X+6),(Y+4);DRAWX,(Y+8);DRAW(X-6),(Y+4);DRAWX,Y
```

YAHTZEE

```
420DRAWX,(Y-8);DRAW(X+6),(Y-4);DRAW(X+6),(Y+4);MOVE(X-6),(Y+4)
425DRAW(X-6),(Y-4);DRAWX,(Y-8);MOVEX,(Y+4);DRAWX,(Y+4)
430MOVE(X-4),Y;DRAW(X-4),Y;MOVE(X-2),(Y-4);DRAW(X-2),(Y-4)
435MOVE(X+4),Y;DRAW(X+4),Y;MOVE(X+2),(Y-4),DRAW(X+2),(Y-4)
440MOVE(X+3),(Y-2);DRAW(X+3),(Y-2);N.;IFY=38 G.450
445Y=38;G.410
450F.X=0TO250;WAIT;N.;G.m
470aP.$30'';?#E0=28;P."A-"A'';?#E0=28;P."B-"B'';?#E0=28
471P."C-"C'';?#E0=28;P."D-"D'';?#E0=28;P."E-"E;R.
480sFF(1)=A;FF(2)=B;FF(3)=C;FF(4)=D;FF(5)=E;G=0;F.W=0TO2
483F.B=1TO4;F.C=B+1TO5;IFFF(B)=FF(C) FF(C)=FF(C)+8
485IFFF(B)(FF(C) G.k
488D=FF(B);FF(B)=FF(C);FF(C)=D
489kN.;N.;N.
492IF FF(1)+1=FF(2) AND FF(2)+1=FF(3);IFFF(3)+1=FF(4) G.j
494IF FF(2)+1=FF(3) AND FF(3)+1=FF(4);IFFF(4)+1=FF(5) G.j
496R.
498jG=2;IFFF(4)+1=FF(5) AND FF(1)+1=FF(2);G=1
499R.
573REM SORT
600K=0;IFEE(X))-1;G.w
602IFB=X;K=K+X
603IFC=X;K=K+X
604IFE=X;K=K+X
607IFA=X;K=K+X
608IFD=X;K=K+X
645EE(X)=K;EE(0)=EE(0)+EE(X)
650c GOS.b;G.d
740IFEE(7))-1 G.w
741EE(7)=0;IFA=B;IFB=C OR D=B OR B=E;G.r
745IFD=E;IFA=D OR B=D OR C=D;G.r
746IFC=E;IFB=C OR A=C;G.r
747IFC=D;IFA=C OR B=C;G.r
749G.c
758rEE(7)=A+B+C+D+E;G.c
760IFEE(8))-1 G.w
761EE(8)=0;IFA=B AND B=C;IFA=D OR A=E;G.t
763IFC=D AND D=E;IFC=A OR C=B;G.t
766IFA=B AND B=D AND D=E;G.t
768G.c
772tEE(8)=A+B+C+D+E;G.c
780IFEE(9))-1G.w
781EE(9)=0;GOS.s;IFG=1 OR G=2;EE(9)=30
783G.c
800IFEE(10))-1G.w
801EE(10)=0;GOS.s
802IFG=1;EE(10)=40
805G.c
820IFEE(11))-1G.w
821EE(11)=0;IFA=B;G.834
826IFB=C;IFC=E;IFA=D;G.p
827IFB=C;IFC=D;IFA=E;G.p
828IFB=C;IFD=E;IFA=D;G.p
829IFA=D;IFD=C;IFB=E;G.p
830IFB=D;IFC=E;IFA=C;G.p
831IFB=D;IFD=E;IFA=C;G.p
833G.c
834IFB=C;IFD=E;G.p
835IFB=E;IFC=D;G.p
836IFB=D;IFC=E;G.p
837IFD=E;IFC=D;G.p
838G.c
839pEE(11)=25;G.c
840IFEE(12))-1G.w
841EE(12)=0;IFA=B;IFA=C;IFA=D;IFA=E;EE(12)=50
845G.c
860IFEE(13))-1G.w
861EE(13)=A+B+C+D+E;G.c
```

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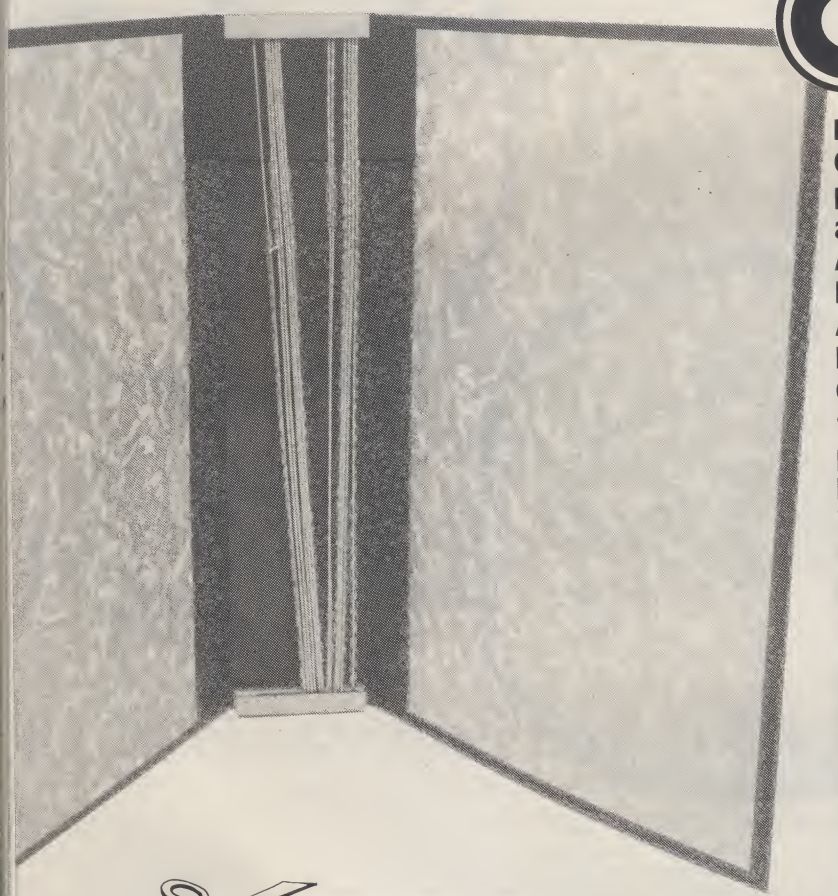

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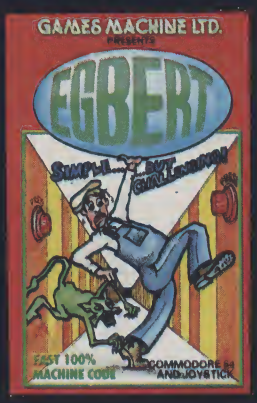

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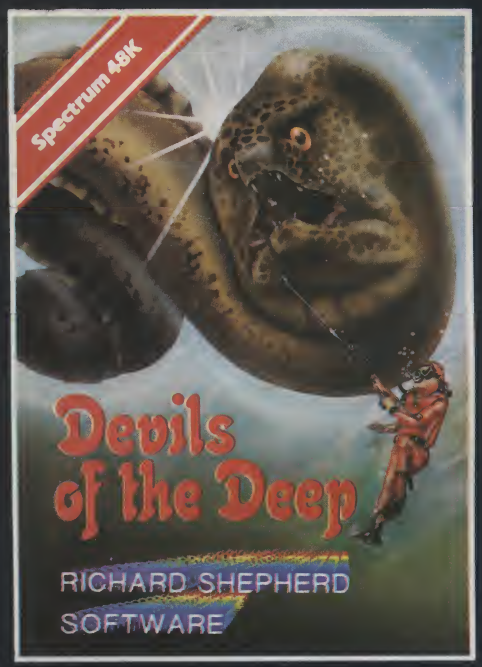

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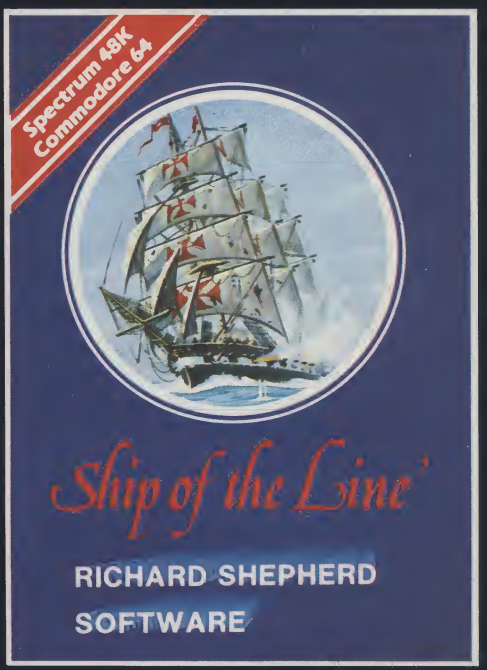

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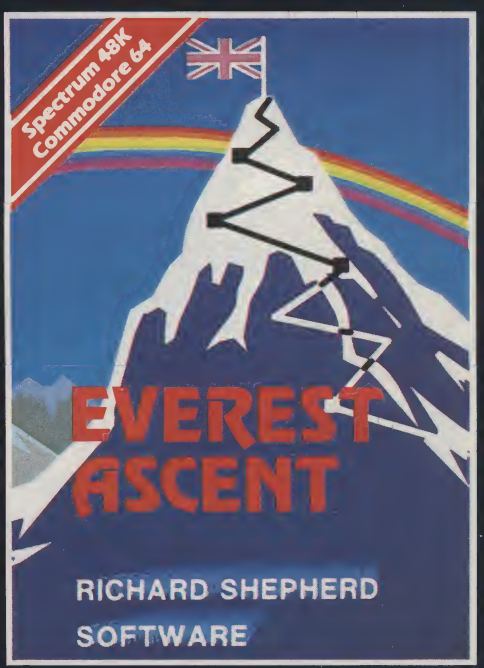

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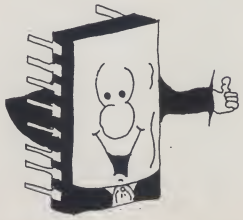

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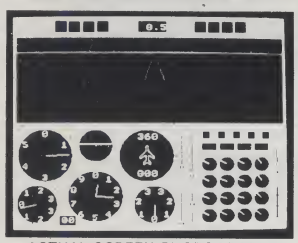

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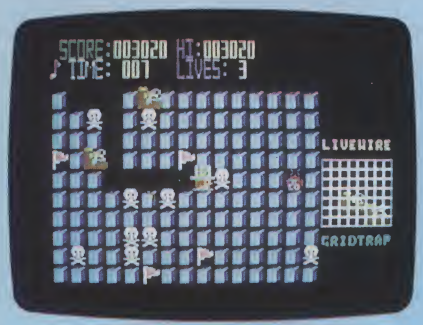

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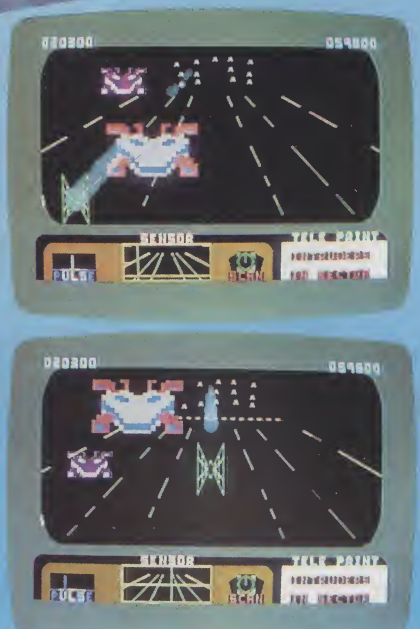

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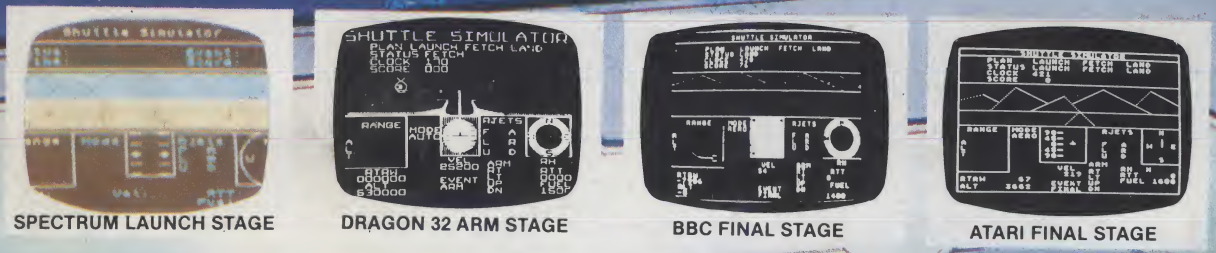

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